RAILROAD GAZETTE

SATURDAY, OCTOBER 16, 1875.

Sir Edward Watkin's Report on the Erie Railway.

Sir Edward W. Watkin's report to the Erie stock and bondholders who sent him to America to examine and report upon their property is published in full in the English papers of Sept. 25. It is dated Sept. 18, and given in eighteen numbered paragraphs, which we condense as follows, without the omission of anything essential, we believe:

1. Sir Edward returned Sept. 18, having had the opportunity of examining the facts necessary to an understanding of Erie affairs.

2. The rental guarantees and the interest on bonds ranking lower than the fourth series of original mortgages are in arrear. The board failed to pay interest due June 1 on second consolidated bonds, after it had announced that such interest would be paid; and May 26 the President was appointed Receiver.

3. The current debt of the company July 31 was, by the account rendered to him, $4,218,075, subject to credit and debit unsettled balances from other railroads, estimated at that time to be a debit of $169,091. The estimated net earnings of the year ending with June last were $3,715,609. The gross receipts were $17,971,898; the expenditures, $14,256,289. At this rate, 14 months' net earnings would extinguish the floating debt.

4. The accounts for the year ending with September, 1875, will be issued in November or early in December, cleared of irregular entries and credits of past years, and will give more exact information than the above estimates. Sir Edward calls attention to the fact that these estimates show the net profits to have been but 21 per cent. of the receipts. They are reduced by the losses in working the leased branch lines. Out of 14 of these only three show a profit above the rentals. The loss on the 11 unprofitable ones was $480,174; on the whole 14, $195,698. Mr. Jewett's report of May 13 of net earnings for the nine months ending with March did not take into consideration these losses. He then reported the net earnings as $3,163,454.

5. The interest payable on bonds yearly is $4,073,106; the rental charges, $1,100,911; a total of $5,174,017 fixed charges, showing a deficiency of $1,458,409 for the year ending with June last. The sum of $1,003,297 in the above expenditures is charged to construction, $154,612 of it for the excess of value of steel over iron rails where iron was replaced by steel. The chief lines with which the Erie competes are worked so as to leave net 34 to 40 per cent. of the receipts.

6. If expenses can be reduced to 70 per cent., the present traffic would give net earnings greater by some $1,600,000. Mr. Jewett speaks confidently of the probable future progress of the net earnings.

7. The exceptional gauge of the road is a source of exceptional cost in working. It must be gradually converted to the gauge of the country. Mr. Morris, the solicitor accompanying Sir Edward Watkin, would report on various claims of the company now subject to litigation.

8. The ledger entries for a balance sheet would demand consideration, but could not include estimates of results of litigation, such as that with Commodore Vanderbilt, the London Banking Association, James McHenry and Jay Gould.

9. The road and equipment appear after inspection to be in full average state of repair, according to the standard in the United States. It had been reported to him that about a tenth of the nominal stock of engines and one-seventh of the cars were represented by useless or worn-out vehicles or were wanting entirely. It was satisfactory that only one engine in ten of the effective stock was in shop for repairs. At Susquehanna the pay roll had been reduced from 1,200 to 500 names, without reduction in work performed. With pay rolls usually months in arrear, discipline and economy are hardly possible.

10. (In full.) In the present state of the credit of the Erie undertaking it seems to me as impossible as it would be unwise, even were it possible, to endeavor to raise and remit more capital from England. I can recommend to you no policy but that of self-redemption. The railway must pay its debts by the use of that part of its current net earnings which the courts may permit to be so appropriated. If the difficulty had been fairly looked in the face in 1872, many unhappy persons would have been saved from loss, and before now discipline and economy would have been fully re-established. Let it be hoped that the bond and stockholders will have the courage now to submit to a period of self-denial, and will consent to pay their debts, and complete essential obligations out of available net profits, the bondholders receiving in place of cash such equitable obligations, realizable out of surplus revenue in the future, as each according to right and priority may justly claim. Placed in firm and honest hands, hands undefiled by speculation, the undertaking must, if possible, be made self-supporting by increased income and reduced working expenditure.

11. (In full.) A receivership is the alternative of time: a foreclosure has been threatened. If the latter is to be avoided, there must be co-operation and control in the working of the former. A receivership worked in cordial concert with all the honest interests in the company will give a strong hand where it is so much wanted, and will enable prompt action to resist intrigues, as well as to solve, on rigid principles, many doubtful obligations. Such a management is under the sanction of the courts, which can be appealed to, if need be, by any bond and stock holder. And, however much I may deplore as unfortunate the announcement of the dividend on the second bonds, I advise you to accept the receivership as the best alternative, under all the circumstances, now possible, and I further advise you to rely upon the honor, as I feel assured you may also upon the anxious labors and full experience, of the President and Receiver. His task, be it remembered, is no light one. He is not responsible for the past, yet he has everything to reform. Following two predecessors, the one a great adventurer and the other a man eminently unfortunate in the conduct of your affairs, he has inherited to some extent the evil reputation of the one and the mistakes of the other. At the same time, the burden of irregularities in England has been laid upon his shoulders, while those who induced him to take the helm have been disappointed by his refusal to be either their servant or their defender. Adopting such an attitude of independence he deserves support, and as he invites co-operation and counsel, he will, I fully believe, so sustained and advised, do all that is possible to retrieve the fortune and the honor of the undertaking. Without the support, cordially given, of all concerned, he must be powerless to effect the changes demanded.

12. Mr. Jewett was confined to his house with a broken leg when Sir Edward Watkin arrived, but nevertheless wished to see him at once. An explanation was asked of the fact that payment of interest on the second consolidated bonds was announced and followed immediately by default and the appointment of a receiver. Mr. Jewett had sent a complete statement in explanation May 27 which has never yet appeared in print. Sir Edward thinks it would have reassured all parties at the time.

13. (In full.) Satisfied with Mr. Jewett's explanation upon this question of confidence or no confidence discussions between us have proceeded, and I have been able (more recently aided by the sound and mature advice of Mr. Morris, your legal adviser, who, accompanied by Sir Joseph Heron, landed in New York about ten days after my own arrival) to come to a general understanding and agreement with the Receiver in terms which I hope may meet general approval. Mr. Jewett cordially adopts the principle, that those who really own the property should practically manage it through their own representatives, he himself being one of those representatives, or trustee, but not a master. And in carrying out that principle Mr. Jewett has, with an alacrity for which I feel grateful, proposed or adopted all the details which have appeared to me to be judicious, just and necessary. For example, your legal adviser, Mr. Morris, has been accepted as the colleague of and co-adviser with the counsel of the company; a committee of consultation, composed either of yourselves or of such other representatives of all the classes of securities as upon a deliberate vote, to be at once taken, the bond and stockholders may select, is to oversee all those proceedings and expenditures, which the use of net revenue, due for bond interests in payment of debt, may lead to, and generally to be consulted by, and to co-operate with the Receiver. Three new directors, men of high position and character, are to be elected to seats at the board, in place of three of the present directors, who resign. An office is to be opened in London, and every month a statement of the actual earnings and expenses of the undertaking, together with periodical reports from the President and Receiver, are to be sent to that office for inspection. More important than all, efforts are to be made to give the bondholders, whose interest is or may be in default, a distinct representation in all votes of the company, and the stockholders are to be invited to concentrate their powers of attorney and their proxies in the hands of their chosen representatives, so that the company, bound together by a distinct organization, shall no longer be the mere victim of adventurers speculating on the chances of a loan of so many shares or of the proxies thereon. The memorandum signed between Mr. Jewett and myself, and which memorandum Mr. Morris and Mr. MacFarland, with the co-operation of Mr. Eaton, will submit to the court, is as follows:

Memorandum of understanding between Mr. H. J. Jewett and Sir Edward W. Watkin for submission to the Committees of Bond and Stockholders.

1. The board of the Erie having confirmed the proposals which were passed between Mr. Jewett and Sir Edward Watkin, as detailed in the correspondence, the three nominees of the bond and stockholders' committee proposed by Sir Edward W. Watkin, and who have been invited to take seats in the board, are to be elected by the board on Thursday next, provided a quorum of the board be present, and, if not, as soon thereafter as a quorum can be obtained, and should these three, or any or either of them decline to act, their nominees to be selected in their place.

2. Mr. Morris is associated with counsel for the Receiver and for the company, and is to be regarded and treated as one of the professional agents and advisers of the undertaking.

3. While Mr. Jewett recommends that the final decision as to a scheme for financial reorganization be postponed until after he has had a further twelve months of opportunity to show to what amount he can develop the net earnings of the company by increased business and reduced expenditure, he will, nevertheless, transmit without delay to Sir Edward William Watkin a memorandum, showing his views of such scheme for the consideration of the committee.

4. It is agreed that the retention and judicious expenditure of net earnings for a certain period of time is essential; that the bondholders, as well as the preference and ordinary stockholders, in proportion to the just measure of their respective interests, ought to have a voice in the expenditure of net earnings, otherwise applicable to the payment of interest on bonds.

To this end a vote is to be taken under the charge of the stock and bondholders' committee in London, at the earliest possible period, upon the constitution of a committee of consultation, consisting of representatives of each class of bonds and of the preference and ordinary stock, and that committee so appointed shall designate a special representative, whose consent and approval shall be taken by Mr. Jewett in the payment and expenditure of all moneys derived from the net earnings of the undertaking (otherwise applicable to the payment of interest on the bonds which the court, with the consent of such bondholders, or their representatives, may permit to be so dealt with) to defray such past debts as the court may order, and to complete essential outlays on capital account, such retention of net earnings not to exceed two years from June 1, 1875. The committee so created as herein provided to have authority to open an office in London for general purposes of business, and for a place of meeting for such committee of consultation, and the expenses connected therewith to be defrayed out of the funds of the company—it being understood that all things herein contemplated are to be performed under and subject to such judicial orders, as have heretofore been, or may hereafter be made, in the premises.

5. Monthly statements of actual earnings and expenses, together with a report from the President and Receiver, to be regularly transmitted to that office.

6. It is essential to the future prosperity of the undertaking under any plan of reorganization, that there should be strength and stability in the management of the company. This can only be secured by so placing the voting power that it cannot be used to further disunion, and promote the designs of outside parties to the prejudice of *bona fide* investors in the stock and bonds of the company. It is, moreover, just in principle that bondholders whose interest is in arrear should participate in the voting power.

Therefore the bond and stockholders abroad, and also in the United States, are to be invited and urged to give their power of attorney and proxies to Sir Edward W. Watkin, whom failing, to such other person or persons as the said representative or representatives of the bond and stockholders shall nominate and designate, so that the voting power may be used solely in the interest of good government, and to promote harmony and efficiency in the administration of the company.

7. In any scheme of financial reorganization provision is to be made for giving a voting power to bondholders whose interest is in arrear so soon as the requisite authority can be obtained, or for such rearrangement of the voting power now vested in the stockholders alone as will vest it in the parties really interested, with just regard to the relative position and rights of the different classes in interest, the exclusion of foreign stockholders from the board of directors to be, if possible, repealed.

8. On the above basis, Mr. Jewett, as President and Receiver for himself and for his board (under the board resolution of September 2, 1875, and generally), and Sir Edward Watkin, on behalf of the committee of bond and stockholders, agree to co-operate together with the view of restoring the Erie undertaking to credit and of putting an end to the period of receivership as speedily as prudence will admit, regard being had to the necessity of terminating or modifying, by legal process or by arrangement, the various inequitable and oppressive arrangements which have been forced upon the undertaking by past mismanagement. (Signed) H. J. Jewett,
E. Watkin.

14. Sir Edward believes that any course decided upon by the foreign stock and bondholders will be adopted in the United States. Mr. Hooper's organization in New York had been dissolved in order to avoid an appearance of antagonism. The men first proposed for new directors were David A. Wells, William Brown, of Portland, and William Spaulding, of Buffalo. Mr. Wells declined for want of time, and Mr. Spaulding by reason of age and varied occupations. Mr. Welsh and Mr. Talman were chosen instead. Mr. Wells promised to act on any committee appointed.

15. Mr. Morris, legal adviser of the committees, is preparing a full report on the legal and judicial position of affairs, to be presented on his return.

16. This report will afford materials for the preparation of a carefully considered plan of rearrangement to be submitted to the stock and bondholders.

17. Mr. Jewett does not intend to receive any other remuneration as Receiver than his salary as President.

18. An inventory of the property is in preparation, and the form of it was submitted.

From the articles in the London railroad journals on this report, we select the following extracts:

The Railway News, always eulogistic of Sir Edward Watkin, says:

"As to Sir Edward's recommendations for the future, there can be no doubt of the soundness of his remarks as to the impossibility and impolicy of raising fresh capital in this country for expenditure on the line. The past experience of the proprietors is hardly such as would encourage them to pour fresh millions into an undertaking which, from some radical defect in its management hitherto, has shown no benefit from capital expenditure. The railway must, indeed, pay its debts out of its current net earnings, but the very existence of those debts, in the face of the millions of capital remitted from this country, a great portion during Mr. Jewett's tenure of office, forms the strongest argument against the whole tenor of Sir Edward Watkin's advice—to leave the management in present hands with such little control as a London committee may be able to exercise. With Sir Edward Watkin's confidence in Mr. Jewett we are sure that the majority of proprietors in this country will not unhesitatingly share. We trust, at least, that no time will be lost in giving the explanation referred to in regard to the announcement of interest payment on the second consolidated bonds, followed so closely by default and the appointment of a receiver. Looking at the bare facts of the case it would be difficult to place any reliance on those who could thus delude their proprietors. Apart, however, from the actual falsity of this announcement, it is idle to shut one's eyes to the fact that the various statements made from time to time by Mr. Jewett, have not been of that straightforward character required by holders of a company's securities."

Herapath's Railway Journal says:

"This is the gist of Sir Edward Watkin's report. He tells us that the floating debt of the company, which exceeds $4,000,000, and its further capital requirements, must be paid not by new capital—which can't be got—but by the application of the company's revenue profits, and that instead of giving the bondholders their interest in cash—the cash earned—they are to have paper. What *paper*? 'The bondholders receiving in place of cash such *equitable obligations, realizable out of surplus revenue in the future, as each according to right and priority, may justly claim.*' Does this mean that the bondholders are to be paid their interest in *preference stock*? Is the old Grand Trunk expedient in its original Arrangements Act to be repeated for the Erie? If so, we think it most clumsy and unfortunate. * * *

"It seems to us that the only *equitable obligations* that should be given the bondholders in lieu of cash, the cash the line actually earns for them, *is paper equal to cash*—good paper; and good paper *can* be given them. The line earns so many millions of dollars a year profit, profit which rightfully belongs to the bondholders, but which the necessities of the company require to be retained and used for a period of two years from June 1, 1875, in paying off the floating debt, and to complete essential outlays on capital account. Well, the advice to keep the profits is sound. Let the profits for two years be so retained, but *give the bondholders their money's worth.* This can be done by handing them *bonds*, bearing 5 per cent. interest, and payable off by a sinking fund in 14 or 15 years. Such paper would be valuable paper, equivalent to cash to *bona fide* holders. Say the profits are $5,000,000 a year. Keep them for the useful purposes named, but hand the unpaid bondholders $5,000,000 of 5 per cent. bonds, protected by an accumulative sinking fund, say as heavy as 5 per cent.—such a powerful sinking fund would repay every bond at par in 14.21 years. The charge for interest and sinking fund would be uniformly until the bonds were cleared off $500,000 a year, or a tenth part of the profit, leaving $4,500,000 profit to be applied as wanted. If it be thought that a sinking fund of 5 per cent. is too heavy, have less. An accumulative sinking fund of 1 (the interest on the bonds being 5 per cent.) redeems every bond in 36.72 years. That would make the charge for interest and sinking fund 6 per cent. per annum, which on $5,000,000 profits would be only $350,000 a year, and on the present profits of $3,715,000 a year—but which are evidently exceptionally low—6 per cent. would be only about $220,000 per annum. Such a plan as this would cause the bondholders little or no suffering. They would have *good paper* instead of cash, paper which the rich bondholders could keep, and which with keeping would certainly be worth 20s. in the pound, while the poor bondholders in want of their income could realize such paper at little loss. If, however, only *preference stock* is to be given them, stock which is but valuable in the event of certain future contingencies arising, we are afraid the bondholders would not be very well content with the arrangement, and would consider their income for the time being as confiscated, while in the end the company would gain nothing by it."

The *Railway Times* says:

"We fear that the English holders of Erie securities cannot be congratulated upon the results of Sir Edward Watkin's personal investigation into the financial position, the commercial resources and physical condition of the property on which those securities are dependent. In return for the £8,000 which it has been stated he has either been already paid or is to receive, for being afforded the opportunity of recovering mental and physical energy from the exhaustion consequent upon, we are bound to presume, almost daily and nightly attendance in the House of Commons and on its committees, during a long, dreary parliamentary session, combined with the constant cares and responsibilities of three great railway systems, he has presented them with a catalogue of disagreeable facts, with which, unfortunately, they were already but too well acquainted, and with the general principles of an arrangement, in which the ex-President and present Receiver of the property has kindly acquiesced, for assuring to them indirectly, through representatives of their own election, a consultative, if not a controlling, voice in its administration. It is for the bond and shareholders, whose contributions must provide the means for defraying the expenses of this costly deputation of the self-asserted highest railway authority in the British Isles, and the most experienced lawyer perhaps on this side of the Atlantic on matters arising out of the impecuniosity of joint-stock undertakings, together with their numerous suites of secretaries, clerks and advisers, to say whether they are content with the value they have received for their money, or are likely to receive, when Sir Edward Watkin's report comes to be supplemented by that of Mr. Morris.

"It is clear that those who are in the habit of discounting values before they are due are not over favorably impressed with the improved position in which the disclosures of this

new 'searching inquiry' have placed the Erie, as compared with that in which the investigations of Captain Tyler and the eminent firms of Quilter, Ball & Co. and Turquand & Youngs left it a year ago. On the day previous to the publication of Sir Edward Watkin's communication, according to the daily records of Stock Exchange movements, Erie securities were firm in the earlier hours, but 'in anticipation of the issue of Sir Edward Watkin's report,' they 'closed flat.' From what source the anticipations which thus affected the market could have emanated other than unauthoritative hints thrown out to favored quarters for the furtherance of speculative movements it is not easy to conjecture, but that the opinion founded upon them was not mistaken, a paragraph in the next day's city article of a contemperary placed beyond doubt by announcing that the publication of the report caused a severe fall in the market for American railways, and that Erie preference shares fell 5, the gold bonds 3, the second consolidated mortgage bonds 2½, and the second mortgage bonds 1."

Interlocking Switches and Signals.

The dangers and risks which constantly attend the movement of railroad trains, especially on lines with a heavy traffic, make it necessary, even if only an approximation to absolute safety is aimed at, to employ all available means to eliminate what may be called personal error. The most carefully devised system of rules and regulations for conducting traffic may be rendered ineffective by the mistake, carelessness or misapprehension of persons who are or should be governed by them. Of course, owing to the limited capacity of all human faculties, the risks from personal error increase very much with the traffic, when the number and speed of trains must necessarily be great, and their movement complicated and difficult of complete comprehension. With the enormous development of railroad business within the last thirty or forty years, this element of personal error has constantly made itself manifest, frequently at great cost of life and limb and enormous destruction of property. It is not surprising, then, that the attention of engineers, railroad managers and inventors has been directed to the subject and that they have been led to devise means to supplement, as it were, the faculties of those engaged in the direction and control of railroad trains.

In considering this subject, it should be remembered that there is no power in the hands of the person running a locomotive or train to *direct* its movement. It can be started either forward or backward, run fast or slow, or stopped; but the locomotive runner is utterly powerless in directing its movement either to the right or the left, or to a straight line or curve. He is solely dependent on the track which is prepared for him. It is, therefore, of the utmost importance that he should know whether the track is ready for the locomotive and train to run on, whether it is clear or obstructed, or whether its continuity has been interrupted. For this knowledge he is in many cases absolutely dependent on the information communicated by others. The correctness of this information is, therefore, a matter of vital importance. A false signal may lure him and others to danger, or a misplaced switch dash them to destruction. Take, for example, a junction, with a single switch, on an ordinary single-track road, as represented in plan by fig. 1. If an express train is approaching such a point, say from the direction indicated by the dart, and the intention of running past at a high rate of speed, some disaster would necessarily occur if there were a train on the branch, and the switch which the train was approaching were set for the branch while a signal indicated that the main line was "clear." Such accidents have been and are still of frequent occurrence. To obviate them, the rod which operates the switch rails is usually connected with a signal—a target by day and a colored light at night—so that whenever the switch is opened to the side-track a danger signal is displayed to approaching trains. Now this device has in it the germ of the system of interlocking switches and signals.

To quote the language of Captain Tyler in his testimony given before the Commission appointed by the English Parliament to report on the Regulation of Railways, "The locking system is employed for the purpose of preventing the signalmen from giving conflicting signals, and preventing them from

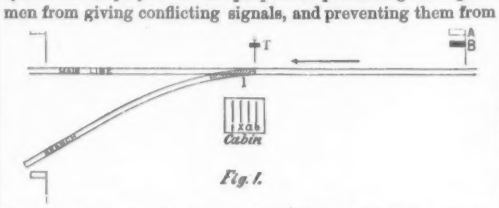


Fig. 1.

turning their points* in one direction and lowering their signals for another direction."

In order to explain the principle on which the interlocking system operates, we will again take as an illustration the junction, fig. 1, of a single-track road with a branch line. We will also suppose that the switch 1 is operated by a lever 1 in the cabin, the mechanism connected with which will be described hereafter.

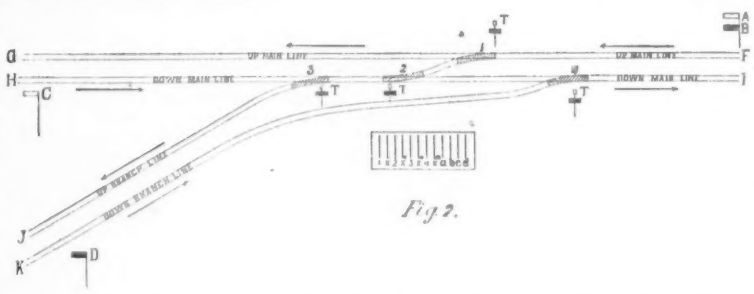


Fig. 2.

It should be stated here that when the number, weight and speed of trains is very great, it is found that a signal at the place of danger alone does not give sufficient time or space after it can first be seen to check a train with certainty before that place is reached. For this reason what are called distant signals *A* and *B*, which consist of movable semaphores which can be raised and lowered, are placed at about 1,000 to 2,000 feet beyond the place of danger, and when raised indicate "stop" or "danger." These are also operated by levers, *a* and *b*, in the cabin, similar to that which operates the switch. These levers are connected with the semaphores by wire or wire rope. The semaphores are counterweighted, so that if the connections or other portions of the mechanism should break, the signals will be raised to "danger" by the weights, and thus stop the trains until the defect can be repaired.

We will suppose now that *A* and *B* are distant signals for trains running in the direction of the dart, and that they refer to the main line and the branch respectively. It is evident that if the switch is set for the main line, and the signal *A* and target *T* indicate "main line clear," the switch might then be moved so as to connect the main line with the branch without raising the signal *A* to indicate "danger" for the main line to approaching trains. Now although the act of moving the switch would set the target *T*, yet if the signal *A* was not raised to "danger" before the switch was moved, or was neglected altogether, a locomotive runner might run his train past the distant signal, and as that indicated "main line clear," would therefore continue without checking the speed of the train until he saw that the switch target *T* was turned to "danger." It might then be too late to stop the train, and if the branch were occupied by a standing train or cars, a collision would be almost inevitable. Of course if the switch was set for the branch, and the target *T* and signal *B* both indicated branch line clear, a similar accident might occur if a train for the branch road was approaching from the same direction, and the switch was moved for the main line without first raising the distant signal *B* to "danger." It will therefore be seen that it is of the utmost importance that the distant signals should *always* be set *before* the switch is moved. In order to accomplish that end the levers in the cabin are made to "interlock"; that is, if the switch is set for the main line, and the distant signal *A* is lowered to indicate "main line clear," the lever *a* by which the signal is operated is so arranged that, in the position it occupies when the latter is lowered, it locks the lever 1 which operates the switch. That is, the switch cannot be moved without first moving the lever *a* and raising the semaphore *A* to danger. Now if, after this is done, the semaphore *B* were simultaneously lowered to indicate "branch line clear," before the switch was moved for the branch, it is evident that an accident might happen to an approaching branch-line train, just as we have already described one might occur to a main-line train, if the distant signal *A* were not set to "danger" *before* the switch was set for the branch, and the continuity of the main line thus broken. In order to prevent such an accident to a branch line train, the lever *b* which operates the distant signal *B* is also arranged so as to interlock with the lever 1, which operates the switch, so that *B* cannot be lowered to indicate "branch line clear" until *after* the switch is set for the branch. In other words, neither *A* nor *B* can be lowered so as to indicate that their respective lines are clear until *after* the switch is set to whichever line the signal refers. Neither can the switch be moved until the distant signal, which refers to the line whose continuity is broken by the movement of the switch, is *first* set to danger. That is, if the switch is set for the main line it cannot be moved to the branch until the distant main-line signal is *first* set to "danger," and the branch distant signal cannot be lowered to indicate "branch line clear" until *after* the switch is moved to the branch line. It will thus be seen that the interlocking system at a junction of this kind makes it absolutely certain that the signals will be set to correspond with the position of the switches.

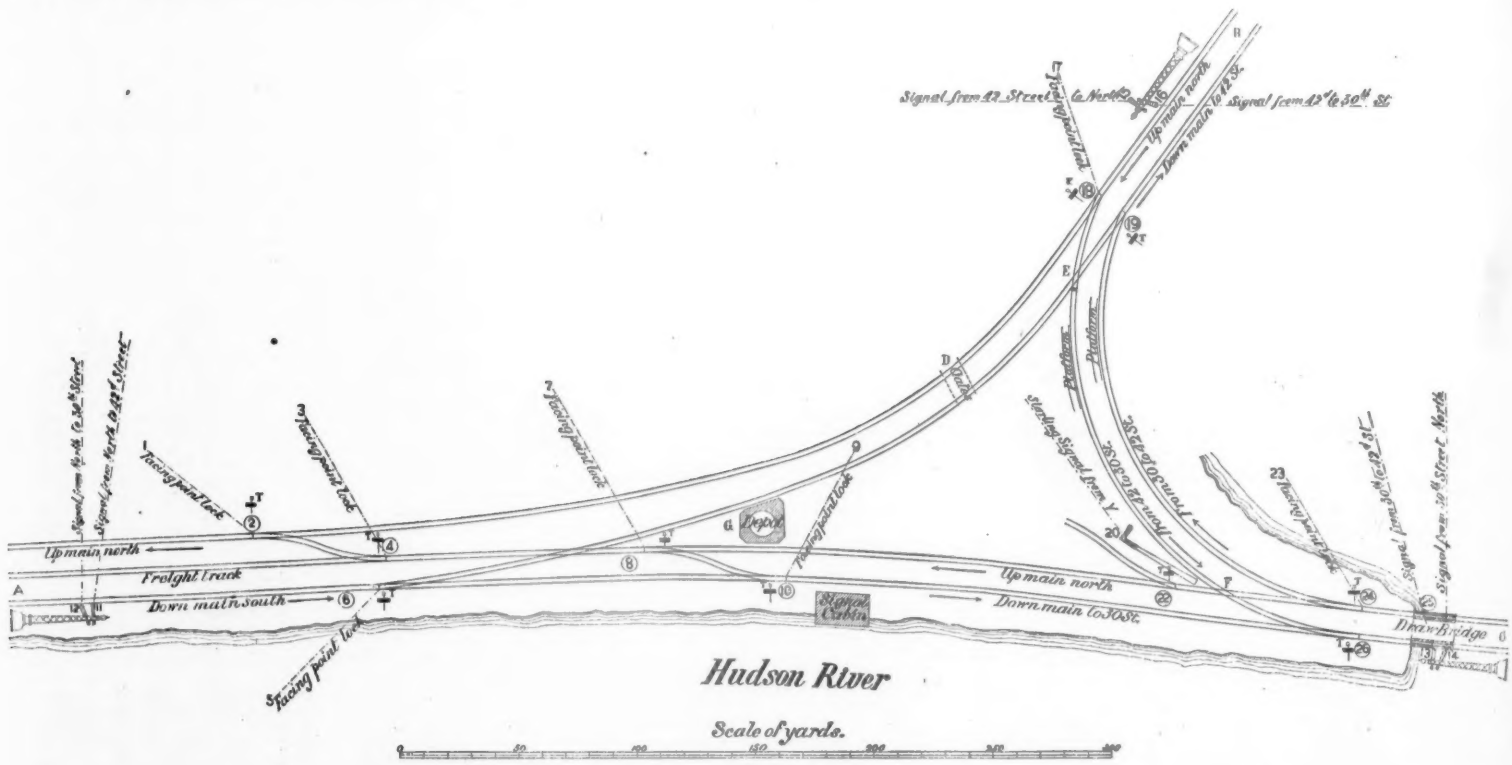


Fig. 3.

Of course on a single-track road on which trains run in both directions, it would be necessary, in order to secure safety, to place distant signals in both directions from the switch; but as the interlocking apparatus is rarely used on such lines, and as the application and use of such distant signals would be the same as of those we have already described, no special explanation of them is needed.

In the operation of ordinary switches there is, however, always danger that the switch rails may be only partly moved from one line to the other, or, to use the ordinary term, may not be moved "home," or that they may be displaced after they are first set. If they are only partly moved, the flanges of the wheels are liable to strike the ends of the rails, and thus either the cars may be thrown from the track, or a portion of the train be run in one direction and a portion in another. For this reason, it has been found that it is not only necessary to be sure that the switches are moved, but also that the rails are locked in their proper position after they are

* The term *points* is used in England to designate what are called switch-rails in this country. If they are so located on a double-track line that the trains approach from the movable ends of the rails, they are called *facing-points;* if from the end which is not movable, *trailing-points.*

moved. The interlocking system is therefore so arranged that after the switch is moved the switch rails are locked, but this cannot be done until the rails are moved completely home.

To illustrate the working of this arrangement for locking the switch rails, we will refer again to fig. 1. We will suppose that the switch is set so as to leave the main line clear. In order to set the switch for the branch, the first thing which must be done is to raise the main-line distant signal *A* to "danger," then unlock the switch, then move it over for the branch, then lock it again, and then lower the distant signal *B* to indicate branch line clear. In moving the switch back again to the main line, the movements must be made in just the reverse order. That is, the branch-line distant signal *B* must be set to "danger," the switch unlocked, then moved to the main line, then locked again, and finally the semaphore *A* lowered to indicate "main line clear." If the lever which moves the switch is designated by 1, that which locks the rails by *x*, and those which operate the two distant signals by *a* and *b*, respectively, then the order in which they are moved in the operation we have first described would be represented by the following arrangement of these letters: *a*, *x*, 1, *x*, *b*, and in that last described in the reverse order, or *b*, *x*, 1, *x*, *a*. The switch target *T* is moved simultaneously and by the same lever which operates the movement of the switch rails, and it must therefore conform exactly with the position of the switch.

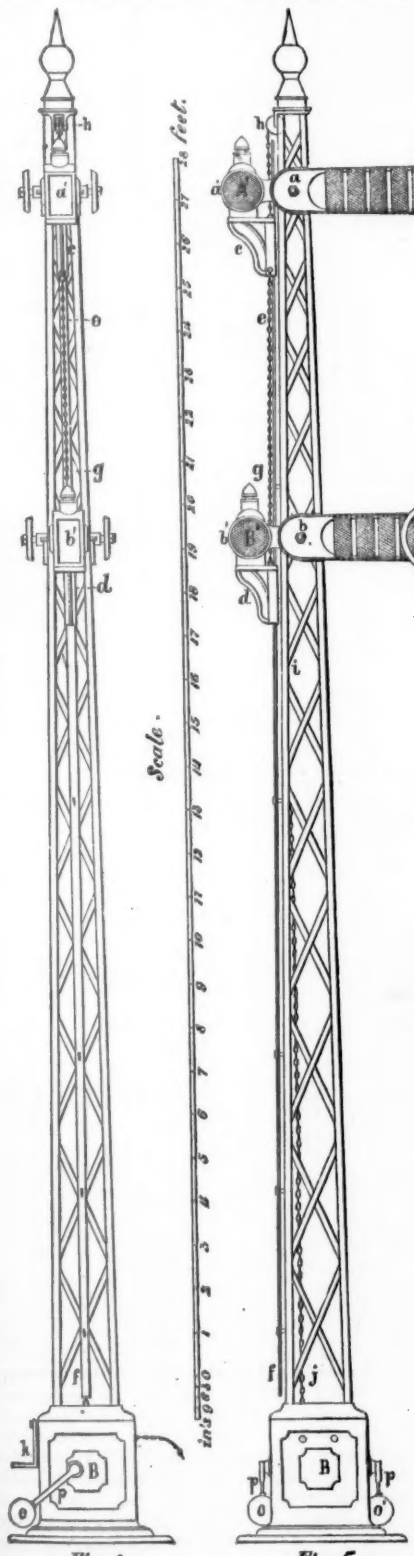


Fig. 4. Fig. 5.

The example of a junction of two single lines, in fig. 1, which we have selected for our illustration of the principles of the interlocking system, is however so simple that probably that method of operating the switches and signals would never be employed in such a position. It is only when there is a complicated arrangement of tracks and switches, with many trains running over them, that the interlocking system has been found necessary or economical. To show its application to somewhat more complicated conditions, we have selected that at the junction of two double-track lines, represented in fig. 2. Instead of one switch, in this case, we have four, and four distant signals; and as two levers are necessary for each switch, one to move and the other to lock it, and one for each distant signal, we must have 12 levers in the cabin.

On a double-track road the trains are supposed to run in only one direction on each track; therefore distant signals are needed in only one direction from the point of danger. We will suppose these to be located as they are shown in the engraving. If now a train on the up main line is approaching the junction from *F*, the movement of the switch 1 and the signals must be the same as that for the single line illustrated in fig. 1. If, however, a train for the branch line is approaching from *F*, it is evident that switches 1, 2 and 3 must each be set right, otherwise the train will meet with accident. For this reason, the lever which operates the distant signal *B* should interlock with each of the three levers which are used to move the switches 1, 2 and 3. That is, *B* should not be lowered to indicate "branch line clear" until after each of the three switches is set to correspond. But if either of the switches 2 or 3 is moved, the continuity of the down main line is broken, or, to use the English phraseology the down main line is "fouled" and, therefore, evidently the distant signal *C* should be set to "danger." Therefore the lever which operates *C* should be made to interlock with each of the levers which operate switches 2 and 3, so that *C* must always be placed to "danger" before either of them is moved so as to foul the down main line. We will suppose now that the levers which operate the switches are numbered 1, 2, 3 and 4 to correspond with the switches, and their interlocking levers x', x'', x''', x'''', respectively, and those levers which actuate the distant signals *A*, *B*, *C* and *D* are marked *a*, *b*, *c* and *d*. If the switch 1 is set so as to leave the up main line clear, and the signals are in a position to correspond with that of the switch, then, in order to admit a train from the up main line to the up branch, the levers ought to be moved in the following order: *a*, x', 1, x', *c*, x'', 2, x'', x''', 3, x''', *b*. That is, signal *A* must be set to "danger" before switch 1 can be moved, and signal *C* must also be set to danger before either of the switches 2 or 3 can be moved so as to foul the down main line, and each of the switches 1, 2 and 3 must be set and locked so as to leave the up branch line clear before the signal *B* can be lowered to indicate that fact. If the different levers are made so as to interlock in the order we have indicated, it will be impossible to give a signal on either of these two lines which will not be in accordance with the position of the switches. Lever *C* must also interlock with that which operates switch 4, so that the latter cannot be set so as to foul the down main line without first setting signal *C* to "danger." Supposing that switch 4 were set for the branch, and the other switches were in the position we left them, then in order to admit a train on the down main line it would be necessary to move the levers in the following order, x', 2, x'', x''', 3, x''' x'''', 4, x'''', *c*. If it was intended to admit a train from the down branch line, *C* must first be set to danger before the switch 4 was moved, then 4 would be set for the branch and *D* lowered to indicate "main line clear." It will thus be seen that any interlocking combination which circumstances may require, is possible. Of course, as the number of switches and signals is increased, so will be the number of levers.

Fig 3 represents a plan of the tracks at the junction of the New York Central & Hudson River Railroad at Spuyten Duyvil, which is just opposite the extreme northern end of Manhattan Island, and is the point where the tracks which lead to the Forty-second street depot branch off from the Hudson River road. The latter, it may be known to most of our readers, runs along the banks of the Hudson River to the Thirtieth street depot, which was formerly the main terminus of that line. At present, all the through passenger trains run into the Grand Central depot at Forty-second street, over the line between *A* and *B*; but the old depot at Thirtieth street is still used for local and freight trains. The old line is connected with that which leads to Forty-second street by tracks *C B*, as shown in the plan, and some local trains are run regularly between the old and the new depots, so that there are trains running in both directions between *A* and *B*, *A* and *C*, and *B* and *C*. As all the traffic of the New York Central & Hudson River road passes this junction, it is evident that to manage the switches and signals here with entire safety is a matter of very great importance to that company. To increase the difficulties, there is a high, rocky promontory nearly in a direct line between *A* and *B*, so that the tracks at *A* cannot be seen from *B*, or those at *B* from *A*. There is also a draw-bridge near *C*, and a road-crossing leading to the station at *C*. This crossing is closed by gates to prevent accidents. It is to this location that Mr. Toucey, the Superintendent, and Mr. Buchanan, the Superintendent of Machinery of the Hudson River Railroad, have applied their system of interlocking signals, whose construction we will now explain.

Figs. 4 and 5 represent two towers about 35 feet high for the distant signals. These towers are made of angle iron, which is attached to a cast iron base, *B*. Two semaphores, *A* and *B*, are hung or pivoted on bolts, *a* and *b*, on which the semaphores turn so that they can be raised into the position in which they are represented, or can be lowered so as to hang down on the side of the tower. *a'* and *b'* are two lamps which rest on brackets, *c* and *d*. These brackets are made to slide on a guide bar, *e f*, and are raised up by a chain, *g h i j*, fig. 5, which passes over a pulley, *h*, at the top, and winds around a windlass, *l*, fig. 6, which is inside of the cast iron base, and is operated by the crank *k*, fig. 4. Fig. 6 represents on a larger scale than figs. 4 and 5, the mechanism which is inside of the tower, and which operates the signals. Each of the semaphores has a red glass, *A'* and *B'*, on one end, which, when the semaphore is raised into the position represented by the engraving, comes in front of the lamps *a'* and *b'* so that their light then appears red, but when the semaphores are lowered, the red glass is removed and the light then appears white. The semaphores are raised and lowered by chains which pass over sheaves or pulleys in each of the shafts *a* and *b* on which the semaphores are hung. These sheaves and chains are shown in fig. 6. In the base *B* of the tower are two shafts, *C* and *D*, each of which has two sheaves, *E F* and *E' F'*. Around the smaller of these sheaves the chains *m n* and *m' n'* which operate the semaphores, are wound, and around the larger sheaves smaller chains are wound, which are connected by wire with the levers in the signal cabin.

Each of the shafts *C* and *D* has a counterweight, *o*, *o'*, attached to it by a lever, *p*, *p'*. These are heavy enough to cause the shafts to revolve and wind up the chains on the smaller pulleys, and thus raise the semaphores. If a sufficient strain is exerted by the levers in the signal cabin on the wires, and thus on the chains which are wound around the smaller pulleys *F*, *F*, the counterweights will be raised and the semaphores lowered at the same time. This arrangement has the advantage already referred to, that in case of the breaking of the wire rope, which must be long enough to reach from the signal tower to the signal cabin, the semaphores at once fall so as to indicate danger.

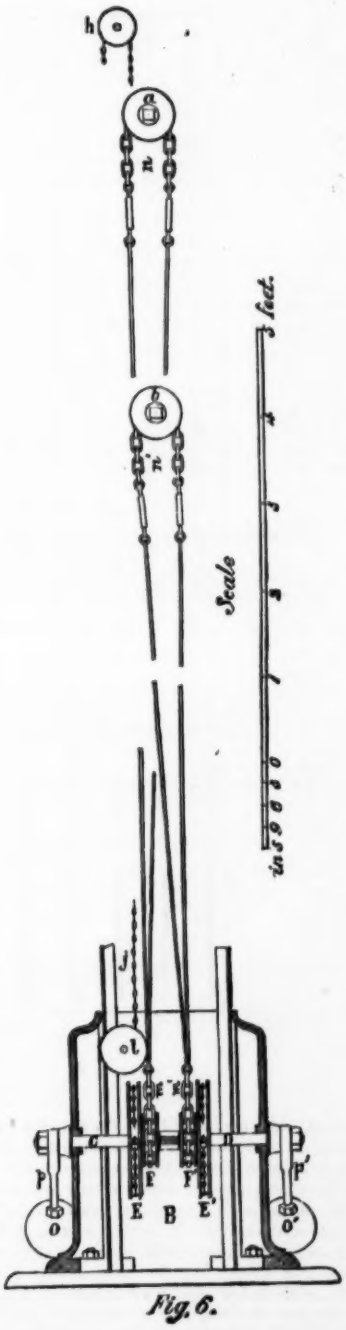


Fig. 6.

Figs. 7, 8 and 9 represent the arrangement of the levers with which the switches and signals are operated in the cabin. Fig 7 is a front elevation, fig. 8 a transverse section, and fig. 9 a plan. The portion *A A* of the plan represents a view looking down on top of the levers; *B B* is a horizontal section on the line *B' B'*, fig. 7; *C C* a similar section on the line *C' C'* of the same figure, and *D D* on the line *D' D'*.

From fig. 8 it will be seen that the lever, *a b c*—which is like all the rest—is made with a bell crank at the lower end, and has its fulcrum at *b*. The ends *c* of the levers which operate the switches are connected by rods, *c d*, to horizontal arms, *e*, *e*, figs. 7, 8 and 9, which are attached to shafts, *f f*. These shafts have each vertical arms *g*, *g*. To the latter, rods, *h i*, are

Fig. 7.

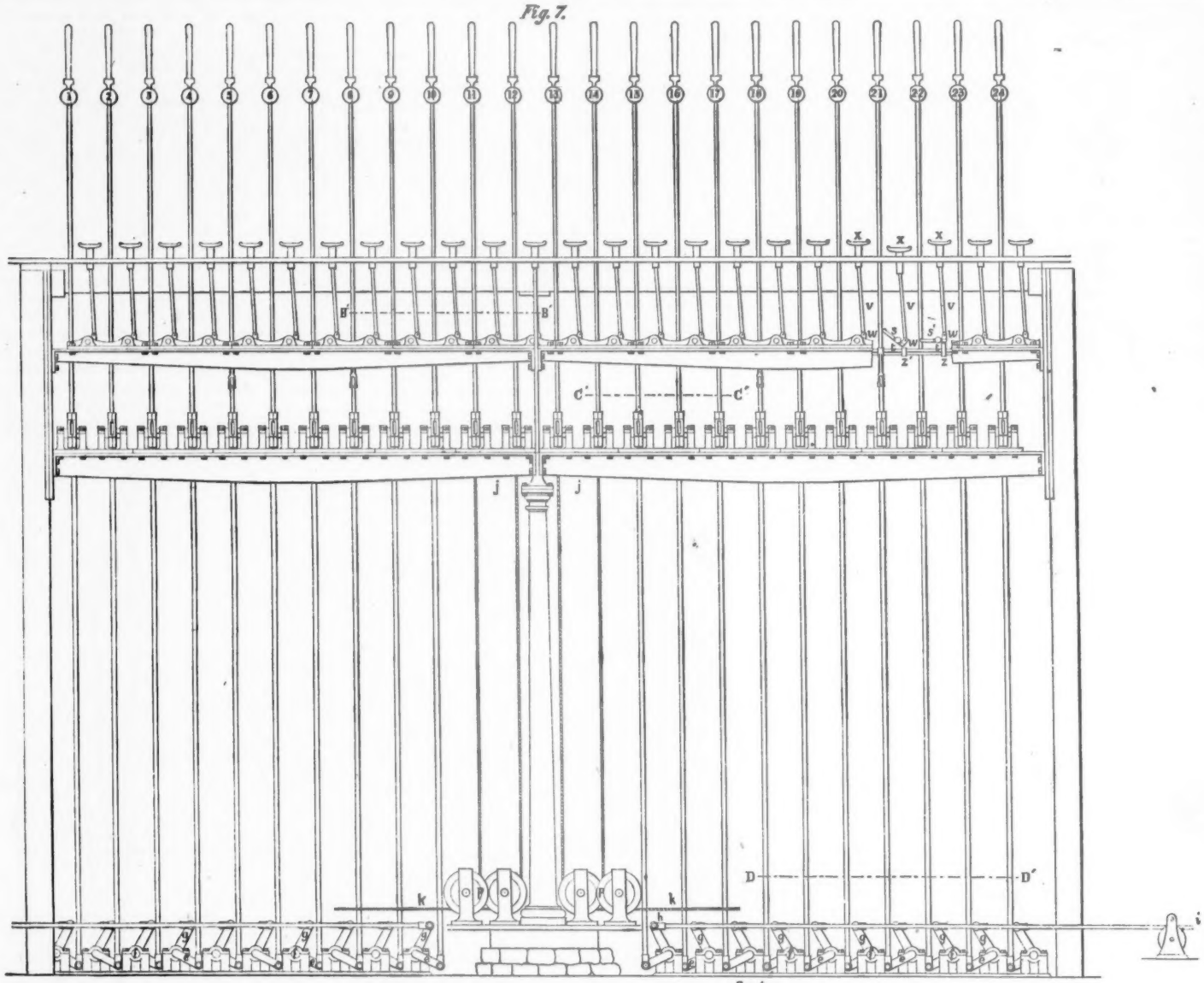
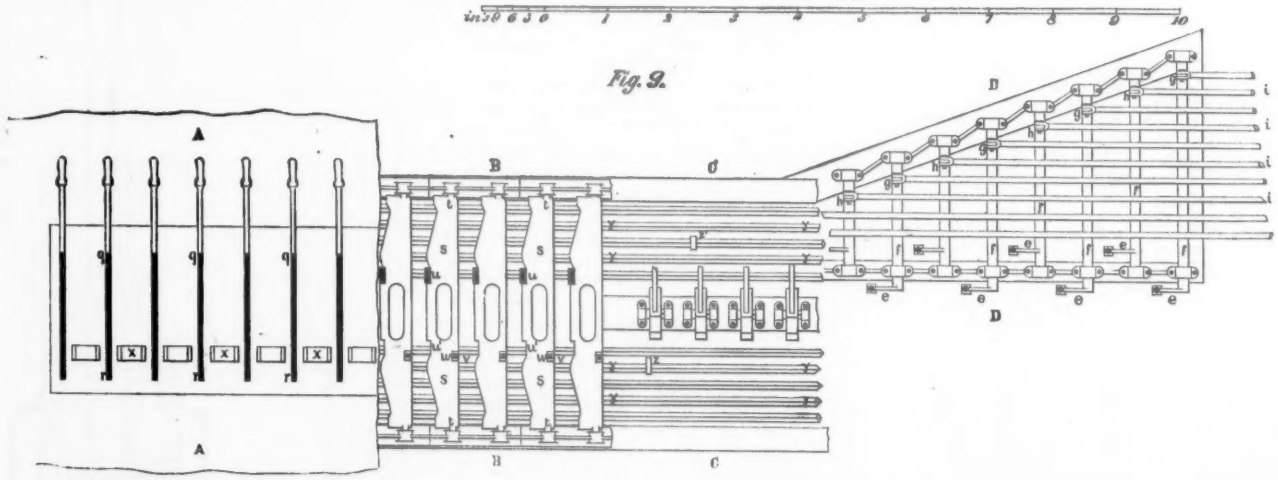


Fig. 9.



attached, which are connected to the switches and their locking apparatus. The latter is represented in figs. 10 and 11.

The mechanism by which the locking is effected consists of what may be called a hollow cast-iron sleeper represented in section by fig. 10, and in plan by fig. 11. This sleeper is placed under the ends of the switch rails at the junction of the latter with the main line and branch rails *B, B* and *C, C*. On the inside of this iron sleeper are two crescent-shaped latches, *D, D*, which are pivoted or suspended on bolts, *a, a*. These latches are operated by a rod, *R R R*, connected to a bell crank *E*. The bell crank is connected with a lever in the cabin by a rod, *F*, fig. 11. When the switch rails and the latches are in the position shown in the engravings, it is evident that the former are securely held in their position by the latches. By moving the rod *R R R* towards the right, it is also apparent that the points *b, b* of the latches may be lowered below the bottom of the rails, so that the latter can be moved sidewise. If the rails are shifted into the position *c c*, shown by the dotted lines, and the latches are again raised, the rails will then be held in their second position as they were in the first.

In moving the switch rails it is of course important that they should be shifted completely from one position to the other of the rails *B, B*, and *C, C*, as has already been explained. It is obvious from fig. 10 that if the rails *A, A* are not moved completely "home" it will be impossible to raise the latches *D, D*, so that this contrivance not only affords the means of locking the switch rails in their respective positions, but also of knowing whether they have been moved entirely over, or "home." Experience has shown that this is of very great importance, as the partial movement of switch rails is a very prolific cause of accident on railroads.

The manner in which the switches and locking apparatus are operated by the levers will be quite apparent from the engravings, if figs 7, 8 and 9 are examined in connection with figs 10 and 11. In fig. 7 it will be seen, however, that levers 11, 12, 13 and 14, instead of being connected by rods to shafts *f, f*, have wire ropes, *j, k*, attached to their lower ends. These ropes pass over pulleys, *p, p*, and are connected with and operate the distant signals, as already described. The levers have counterweights, *X*, fig. 8, attached to them, in order to facilitate their movement.

The levers which operate the switches are connected by rods, *G*, usually made of gas-pipe, to bell cranks, *H*, figs. 10 and 11, which in turn are connected to the switch rods by other rods, *K L*.

It is of course important, when any of these levers are moved into any position, that they should be securely held there, so that they cannot be moved in any way by accident. It will be observed at *A A*, fig. 9, that the levers move in long slots, *q r*, *q r*, in which they fit quite accurately, so that they have very little or no lateral motion. At *B B* of the same figure are shown what, for want of a better name, we will call locking plates, *s s*, *s s*. These are also shown in fis. 7 and 8. They consist of flat iron plates, which are hung in journals, *t t*, at each end, in which they can turn so as to assume the position shown at *s* in fig. 7. On the edges of the plates there are notches, *u, u'*, fig. 9, which hold the levers and prevent them from moving from the ends of the slots when the latches are in the position shown at *s'* in fig. 7, and also in fig. 9. If, however, the latch should be tipped up into the position shown at *s*, fig. 7, it is evident that the lever would be disengaged from the notches. In order to be able to disengage the latches in this way, rods, *v, v*, are attached to the plates or latches by lugs, *w, w*. The upper ends of the rods, *v, v*, are provided with treadles, *x, x*, so that the latches can be raised by the operator of the signals into the position represented at *s*, fig. 7, if the treadles are depressed by his foot.

The necessity for arranging these levers in such a way that they will interlock each other has already been explained. The manner in which this is done may be understood by reference to the section *c c*, fig. 9, in which it will be seen that a number of square iron shafts, *y y, y y*, extend along under the latch plates. These shafts are shown in section in fig. 8. To these arms, *a', a'*, are attached, which are connected to the levers *a b* by rods, *b', b'*, so that the movement of the levers will cause the shafts *y, y*, to make part of a revolution. Small cams, *z, z*, are also attached to the shafts. These are placed in a position on the shafts immediately under the edge of the latch plates, as shown at *z*, fig. 7. It is evident now that if one of these cams is in the position represented by *z* in figs. 7 and 8, it will be impossible to depress the treadle and release the latch under which the cam is placed; whereas if the cam is turned into the position indicated at *z'*, it would release the

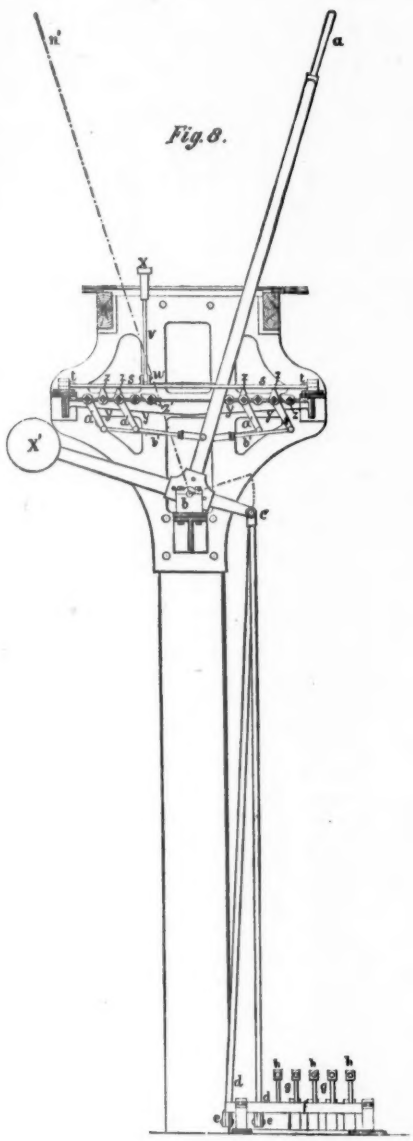


Fig. 8.

represented by fig. 3. It will be seen from this plan that there are ten switches, numbered 2, 4, 6, 8, 10, 18, 19, 24 and 26. Near *C* there is also a draw-bridge, and at *D* is a road-crossing with gates.

In operating this system when there are no trains passing, the switches are always set for the main line, and the distant signals to danger. When a train is due, the switches are set for the track over which the train is to run, and the appropriate signal is then lowered to admit the train. To illustrate the method of operating, we will suppose that a train is approaching from Forty-second street on the up main north track. It is evident that if either of the switches 2 or 18 is set wrong, such a train would be thrown from the track. For this reason, when the levers which operate these two switches are thrown back into the position *n' b*, shown in fig. 8, so as to interrupt the main line, they lock the lever which operates signal 15, so that 15 cannot be lowered if either of these switches is set wrong for the main track. When 15 is lowered to indicate main line clear, and the lever is consequently thrown back, the latter locks the levers which operate the two switches so that they cannot be moved so as to foul the main-line until 15 is first set to danger. If a train is approaching from Forty-second street on the up main north track for Thirtieth street, it is plain that switches 18 and 26 and also the draw-bridge must be set accordingly. Therefore, when 18 is set for the up main north track and the lever is consequently thrown forward, it locks the lever of signal 16. The lever which locks the draw-bridge is also arranged so that when the draw is open it locks 16. It is also evident that if a train were admitted from *A* on the down main south track and another from Forty-second street for Thirtieth street at the same time, a collision might occur either at the crossing *E*, or at switch 26. Therefore when signals 11 and 12 are lowered, and their levers consequently are thrown back, they also lock 16. Before 16 can be lowered so as to admit a train for Thirtieth street, therefore, switch 18 must be set for the branch, the draw-bridge closed, and the signals 11 and 12 be set to danger. A collision would of course be possible at the crossing *F* in case a train should approach from Thirtieth street on the up main track at the same time that one from Forty-second street to Thirtieth street was passing. This could be avoided by making signal 14 to interlock with 16. It was found, however, that by doing this detentions were likely to occur, owing to the fact that all trains running between Forty-second street and Thirtieth street stopped at the platform between *C* and *B*, and most of the trains on the main line to and from Thirtieth street stopped at the depot *G*. For this reason a supplementary or starting signal, 20, was placed at the crossing *F* of the two tracks. The semaphores of this are placed on a shaft at right angles to each other, so that when one is lowered for "line clear" the other is raised to "danger," so that it is certain not to admit more than one train at the crossing *F*.

The same principle which has been explained, and by which the movement of the switches always precedes that of their signals, is employed for controlling the movement of all trains which pass over any portion of the system of tracks represented in fig. 3. The method in which this is done may, we believe, be fully understood from the following table of the

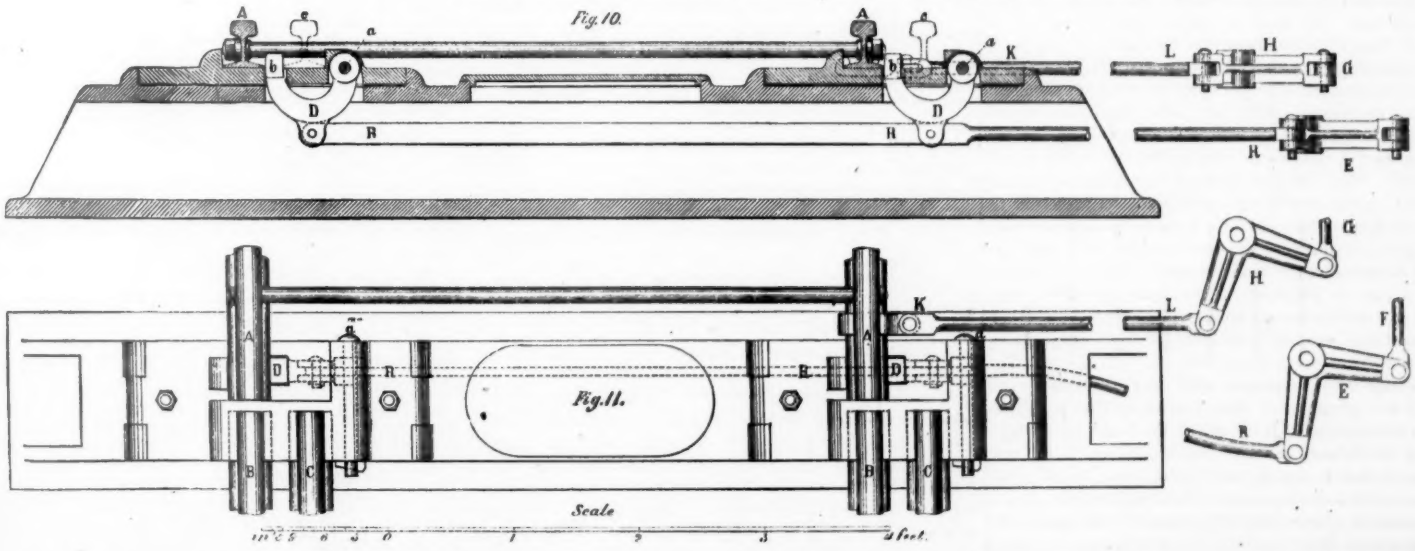


plate and the treadle. It is also apparent that by connecting each of the levers to one of the shafts *y* by a lever *a'* and rod *b'*, it will be possible to lock any of the levers by adjusting a cam in the proper position under the latches connected with whichever levers it is desired to lock. The cams can also be adjusted to lock any lever in either position; that is, when it is thrown forward in the position in which that in fig. 9 is represented, or when thrown back in the position *n' b*. It is, therefore, apparent that any combination of interlocking is possible with this mechanism. That is, any lever when in either position can be made to lock any other levers in any position desired. It will thus be seen that it is only necessary to apply the principle of interlocking switches and signals which has been explained, to any locality, and the arrangement described will furnish the means of applying that principle to practical use. There is hardly any limit to its application, and the most complicated system of tracks and trains can, as it were, be so formulated that mistakes in setting any of the switches or signals will be impossible.

In order to explain the application of this arrangement to the tracks of the New York Central & Hudson River Railroad at Spuyten Duyvil, we will refer again to the plan of them levers and of their movements. In the engravings, only 24 levers are represented, whereas it was found that two more, which are not shown in the engraving, were required for the system at Spuyten Duyvil. These are all arranged and numbered consecutively, as shown in fig. 7. The following is a list of the levers, and the functions of each which will be readily understood by referring to the engraving.

LIST OF LEVERS.

2, 4, 6, 8, 10, 18, 19, 22, 24, 26—Switch levers.
1, 3, 5, 7, 9, 17, 21, 23—Switch lock levers.
11—Signal from north to 42d street.
12— " " " " 30th "
13— " " 30th to 42d "
14— " " " " north.
15— " " 42d street to north.
16— " " " " " 30th street.
20—Starting signal on Y.
25—Drawbridge signal.

LOCKING.

Lever No. 2, when back, locks 15.
" " 6, " forward, locks 11.
" " 8, " back, " 14.
" " 10, " " " 12.
" " 12, " " " 6, 10, 11, 16, 20, 25, 26.
" " 11, " " " 6, 12, 14, 16, 18, 19.
" " 13, " " " 19, 20, 24, 25.
" " 14, " " " 8, 11, 19, 20, 22, 24, 25.
" " 15, " " " 2, 18.
" " 16, " " " 11, 13, 14, 18, 25, 26.
" " 18, " back, " 15.
" " 18, " forward, " 16.
" " 19, " back, " 11, 14, 24.
" " 20, " " " 12, 13, 14, 25, 26.
" " 22, " " " 14.
" " 25, " " " 12, 13, 14, 16, 20.

When this system was first applied in this country, some apprehension was expressed as to the effects of snow and frost on its working. The arrangement which we have illustrated was, however, used at Spuyten Duyvil during the whole of last winter, which it will be remembered was an exceptionally severe season, and no special difficulty was found in working it during that time.

The saving of labor effected by such an arrangement in localities where there are many trains and switches is very considerable. Before this system was put down at Spuyten Duyvil it was found necessary to employ a telegraph operator at the depot, a signalman at *C* and *B*, a bridge tender at the draw-bridge, a switchman at switches 22 to 26, another at 18 and 19, and one at switches 2 to 10—in all eight men. Now one telegraph operator, one signalman in the cabin and a bridge tender do all this work, with much greater certainty and less delay to trains. It was and is of course necessary to have two gangs of men, so that the saving of wages of men is a very considerable item.

Mr. Toucey has applied this system to the tracks which lead into the Grand Central Depot on Forty-second street, and it is now in operation there. The system is, of course, applicable to the most complicated system of tracks.

The interlocking system is now very extensively used in Europe, especially in England. In some localities more than a hundred levers are required to operate the switches and signals. There seems good reason for believing that it will soon be used in this country at important stations and localities where there is a complicated arrangement of tracks and frequent trains.

Further information regarding the arrangements which we have illustrated can be obtained from Mr. J. M. Toucey, Superintendent of the New York Central & Hudson River Railroad, New York.

National Tube Works.

This Company has recently filled an order for *seven miles* of 10-inch lap-welded pipe for the Virginia City & Gold Hill Water Company of Nevada, said to be the largest order for such material ever given in this country. The company coats these pipes inside and out with enamel, which is said to make them almost indestructible. Reports of two eminent chemists, S. Dana Hayes, State Assayer and Chemist of Massachusetts, and Prof. Otto Wuth, of Pittsburgh, have been published, showing that severe tests with many kinds of water and other fluids, even when boiled in the pipe, made no impression on the enamel, so that water conveyed in such pipes can receive no deleterious substance from them. The company has just been awarded a gold medal by the Mechanics' Industrial Fair at San Francisco for superior quality of their patent enamel wrought-iron tubing.

The New York Central and Politics.

Mr. Henry R. Pierson having been nominated for State Senator by the Republicans of the Albany district, Mr. Wm. H. Vanderbilt addressed him the following letter:

"I am in receipt of yours announcing your unanimous nomination by the Republican Convention for the State Senate, and asking my views on the subject. You are well aware that the policy of this company is against its officers becoming candidates for political positions. Our management is purely a business one, and its purpose is to run a railway in the way that best promotes the common interests of the public and the owners of the property. We can have no legitimate association with political parties, and we desire to avoid all complication with matters which do not pertain to the business of the company. You are a director of this company, and the responsible head of one of its most important departments. Your official duties would naturally be supposed to occupy all of your time and attention, if we conduct our business as closely and economically as we claim, and to absent yourself from those duties while serving as Senator would probably embarrass, and could in no sense help, the company."

Mr. Pierson declined the nomination.

Railroad Manufactures.

The Rhode Island Locomotive Works at Providence, R. I. are building four engines for the Boston & New York Air Line road.

The Hinkley Locomotive Works at Boston recently turned out a 27-ton engine for the Hoosac Tunnel line. It is to be used on a construction and repair train on the State road.

The new Edgar Thomson Steel Works, near Pittsburgh, recently made 84 tons of steel ingots in one day. At the same works last week there was rolled a steel rail 60 feet long. It weighs 60 pounds to the yard and is said to be the longest steel rail ever rolled. It was sent to the Pittsburgh Industrial Exposition.

The Puget Sound Foundry, at Seattle, Wash. Terr., is making wheels for coal cars, and is fully employed.

RAILROAD GAZETTE

Published Every Saturday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

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Editorial Announcements.

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

SIR EDWARD WATKIN ON THE ERIE RAILWAY.

From an abstract of the report made by Sir Edward Watkin on the Erie Railway Company, published on our first page, we may know what that eminent English railroad officer thinks of this company, and learn the measures he suggests to help it out of its difficulties—so far as he has suggested any. He was chosen in the first place by the English bondholders, a portion of whom have not received the interest due them, and afterwards was authorized to represent also the stockholders, who not only get no dividends, but by the failure of the company to pay its debts are liable to have their property sold for the benefit of its creditors. Although the former class have hitherto had their dues promptly paid, the difficulties of the company are nothing new; they have been the subject of complaint and investigation for many years, and some excellent authorities on railroad affairs have done their best to explain them and suggest remedies. It was, then, by no means an unexplored ground that Sir Edward Watkin had to traverse. What the Erie Railway has done and failed to do, and what good railroad managers have proposed to remedy its deficiencies could be known by any one who would read. Still, the occasion justified the appointment of an agent for the bondholders to see what can be done to secure the payment of the sums due them and unpaid; and one by the stockholders to ascertain whether or how they can prevent the sacrifice of their property to pay their creditors.

It was not to be expected, after the recent exhaustive survey of the property of the company by Captain Tyler and the investigation of its books by the London accountants, that Sir Edward Watkin should in his short stay learn much that is new about the company. In fact, the chief information on that score to be found in his report is the statement of earnings and expenses, which for the year ending with June are said to have been:

Gross receipts	$17,971,898
Expenditures	14,256,289
Net receipts	$3,715,609

While at the close of July a floating debt of $4,218,075 had accumulated, which might be increased by not more than $200,000 on the settlement of accounts with other railroad companies.

To ascertain why the company should fail to pay its interest this year, a comparison with the results of previous years is needed. The earnings, expenses and net receipts for a series of years have been reported as follows, all but the last ending with September, and the last therefore including three months of that preceding:

	Gross receipts.	Expenses.	Net receipts.
1869–70	$16,179,462	$14,824,860	$1,354,602
1870–71	17,168,005	15,273,601	1,895,404
1871–72	18,371,888	14,458,267	3,913,621
1872–73	20,012,607	13,640,643	6,371,964
1873–74	18,598,898	13,563,738	5,035,160
1874–75	17,971,898	14,256,289	3,715,609

Now as the rentals and interest charges per year are $5,174,017, it seems that there has been no year in the history of the company when the net earnings would have met all the fixed charges, except 1872–73; and it has been shown that then a very large amount was improperly charged to capital and other accounts which should have appeared as expenses. There is, it is true, a considerable reduction of net earnings last year; they are less than has been reported since 1870–71; but then if they had been fully maintained, the company would still have been unable to pay all its coupons. That is, the figures show that it is an increase in interest charges that threatens the company with bankruptcy, as well as a reduction in the amount of profits. Sir Edward Watkin says nothing of this.

As the figures stand, however, the stock and bondholders may be supposed to wish to know why during the last year there has been a decrease in receipts and an increase in expenses. Their agent, however, has little more to say on the subject than that business is dull. He does mention, however, that of the total expenditures more than a million dollars were charged to construction. This, if properly charged, of course reduces the working expenses by so much, and thus they would appear to be $200,000 less than for the previous year, instead of $700,000 more, as would appear by his statement. Thus the increase in expenses is explained.

As to the reduction in earnings, "dullness of business" has doubtless had something to do with it, but chiefly in a different way from what a reader of this report might imagine. The fact is, we believe, that the Erie Railway carried about as much this year as last. What needs no explanation to Americans, at least to American railroad men, might well be pointed out to the English proprietors—that is, the fact that the company has been forced to carry at lower rates than ever before. It seems to us that a simple explanation of the situation would be: "Your road has, as it long has had, a large traffic, for carrying most of which it has to accept whatever rates its competitors are willing to take. This year these rates have been low without precedent, and, having about as much work to do as ever, the company has had to pay nearly as much as heretofore for expenses. Meanwhile, as is known, the company's bonded debt has been largely increased, and consequently the amount of interest due yearly. That is, there has been a considerable increase in the yearly dues and a considerable decrease in the yearly profits; and the former are now greater than the latter."

But if Sir Edward Watkin's report fails to state the cause of the company's difficulties, it fails still more decidedly in suggesting a cure. Indeed, almost the only things recommended are the devotion of all the net earnings to the payment of the floating debt, and the participation of representatives of the bondholders in the supervision of the company's affairs. How this is to help matters, we do not see. The payment of the floating debt will be a good thing, doubtless; but then this method of doing it will simply create another debt of equal or greater amount due to the bondholders whose coupons are not paid. The participation of the bondholders is also desirable—though something more than "participation" is what should be expected of them. But nothing of this kind will increase the traffic of the company or the rates received for carrying it, or reduce its expenses. We see that the company never has earned enough to pay the present amount of yearly charges. How shall the road be made to return greater net profits is the burning question for its proprietors, and Sir Edward Watkin has no suggestions to make on this, except to say that it is useless to try to raise new capital for it, and to suggest that the gauge should be changed to the standard of this country "gradually"!

Now if the company is not to have any new capital, the stockholders and the lower classes of bondholders may as well cease to trouble themselves about it. It never has earned anything for them (or not much) when its traffic was largest and rates highest. It may hope to get a large traffic again, but it never will have high rates. Its competitors can make a satisfactory profit at low rates, and the Erie must take what they do. What then? If it cannot get more for doing a given amount of work, the only way to make greater profits is to *spend less*, and this is just what the Erie must be able to do in order to thrive. It must be able to carry at less cost per ton and per passenger per mile.

Now it can hardly hope to do this with its present facilities. Its expenses are now very low, considering its circumstances, and we wish some of the Englishmen who complain that its expenses are "nearly 80 per cent." would take the pains to point out any English railroad that carries a ton of freight a mile at less expense. Perhaps there is one; but we have no evidence of it. The trouble is that they do not take into consideration the extremely low rates at which our trunk lines carry.

Sir Edward Watkin himself insinuates that it is extraordinary that the Erie's expenses were 79 per cent. of its receipts, when its chief competitors did their work for 60 to 66 per cent. Certainly the President of three railroad companies, of long experience in railroad business, ought to know that the object of railroad improvements is to lessen expenses, and that the chief competitors of the Erie have had almost every facility for doing their work cheaply that they could desire, while the Erie has almost stood still for ten years. The New York Central has four tracks; the Pennsylvania everywhere two tracks and in many places a third track and alternate lines, and has spent enormous sums to provide for the cheap conduct of the very costly New York terminal business. The Erie has for much of its length only a single track; it has to do its work in a crude and costly way for lack of the conveniences which money will buy. It is as unreasonable to expect it to do a given amount of work at as low a cost as that on the better improved roads as it would be to expect a wood-chopper to cut as much with a dull as with a sharp axe. The Erie positively cannot continue to compete with its neighbors north and south unless it has more money spent on it. These competitors do not stand still; they are improved every year, and every year almost without exception are able to carry at less cost than the preceding year. If this progress continues, they will before long be able to make good profits at rates lower than the bare cost on the Erie.

No definite plan of agreement has been submitted as yet for the approval of the stock and bondholders; but it is intimated that *all* classes of bondholders will be asked to permit the withholding of their interest for a time. Of course it is easy to understand that the stockholders will agree to this; they have nothing to lose. The only dividend ever received by the majority of them was paid from the proceeds of a sale of bonds. But that the bondholders should consent to it—at least that the holders of the earlier issues should—is hardly credible. The road was pledged to them as security for their dues. For many years it has only earned enough to meet their claims, and meanwhile the stockholders have done nothing to make it earn more, nor do they now propose to do anything. It is only right that the bondholders should say to the company, "Give us our money or the road;" and the shareholders are the company. The lowest class of bondholders might not be able to earn their interest with the road until it was improved; but it will certainly be easier to get capital for a road with a small than with a large debt, and with a capital account consisting of the present funded debt plus the amount needed to make the road thoroughly efficient as an economical carrier, the Erie Railway could easily be made profitable to its proprietors.

That the bondholders will not readily accept an abridgement of their rights for the benefit of the stockholders is indicated by some passages from London journals which we have appended to the report. Still more significant is a letter signed "North Briton," in the London *Railway News*, which is as follows:

"Sir Edward Watkin has been examining into the affairs of the Erie Railway, and finds the company in debt to the extent of $4,000,000, to liquidate which he proposes to offer the bondholders paper instead of cash, for two years to come. He says 'he hopes the bondholders and shareholders will have the self-denial to pay their debts,' &c., and rides so royally over all questions of ranking in the 'general principles' of his understanding with the Receiver, as almost makes me doubt whether I am not actually a debtor of the railway instead of a secured creditor, as I have supposed. I am a first consolidated mortgage bondholder, who read the mortgage before I bought my bonds. The stock and unsecured bonds I have always looked upon as of very doubtful value, but these being a first charge, including priorities of $30,000,000, on a railroad earning from $16,000,000 to $20,000,000 a year, I consider, in common with many others, an investment security of a non-speculative character, and even Sir Edward's report conveys no doubt of their absolute security for both principal and interest. But however good the security for ultimate payment may be, it is to the terms of the mortgage debt that I must look for my ability to make that security promptly available.

"These terms are, I am glad to say, clearly defined, and ample for the immediate protection of my interests. First-mortgage bondholders ought to know that it does not require a combination of a majority in interest to foreclose, but that a single bondholder, on a default, may have a receiver appointed, and that on a continuance of same for six months the line may be sold. The Receiver is paying regularly the interest on the currency mortgages, firsts and fourths (and not on the fifths, simply because under its provisions he was appointed Receiver), and it is important, therefore, to see how these bonds have from time to time been converted into first consolidateds.

On 1st September, 1870, when the first consolidated mortgage was created, the amounts were:

First,	$3,000,000	Compared with which the am'ts now outstanding are	First,	$2,483,000
Second,	4,000,000		Second,	2,173,000
Third,	6,000,000		Third,	4,852,000
Fourth,	4,441,000		Fourth,	2,937,000
Fifth,	926,500		Fifth,	709,500

These conversions give additional strength and unassailability to the first consolidated mortgage. In addition to this it may be mentioned that, with exception of the small outstanding amounts of fourth and fifth mortgage, the consolidated first mortgages are an entirely first lien on the Newburgh Branch, and on the company's property in and near Jersey City, which latter is of very great value. The position of Erie is that of a bankrupt. The first-mortgage bondholders are amply secured creditors. The stockholders are the partners through the blundering and incapacity of whose representatives their property has been brought to its present pass. Sir Edward advocates a policy of 'self-redemption;' but is it self-redemption to call upon amply-secured bondholders to advance money to preserve intact the reversion of the property for those through whose blindness and folly all these disasters have been brought about? There are thousands of investors to many of whom the funding of two years' coupons is a very serious matter, who have relegated Erie stock and second-mortgage bonds to gamblers and speculators, but who have confidently bought the first mortgages, as investigation after investigation has demonstrated their absolute safety. But of what avails care and discrimination in investing if Sir Edward Watkin's leveling-down proposals are listened to. How he can coolly propose that the interest on these bonds should be suspended for the same period as for the second mortgages, or for any period such as two years, and expect the holders tamely to submit, I am quite unable to understand. The necessity of obtaining unanimity among the holders of these bonds is so great that I feel certain the committee, on mature consideration, will show them the greatest consideration; if not, they may take it as settled be-

yond the shadow of a doubt that foreclosure proceedings will be instituted."

It is well enough to give the stockholders another opportunity to redeem their property; but if the bondholders are to postpone their claims in favor of the stockholders it should be only on the condition that the latter do something to enable the company to meet its obligations hereafter—that is, advance capital to render the road capable of doing its work at less than the present cost. The old issues of bonds are so well secured that any concessions the holders may make will be purely gratuitous: probably they will always get their money if they insist upon it. But the lower classes of bonds will hardly gain anything by neglecting to enforce the rights which the failure to pay interest gives th em, unless the stockholders—that is, the company—do something to improve the security of their bonds. A simple postponement of the payment of interest is not going to enable the road to increase its profits—unless, indeed, the delay is for so long a time that the needed improvements can be paid for out of net earnings; and in that case the stockholders' property will have been improved entirely at the expense of their creditors. If the latter must give their money to improve the road, they should make sure that they own what they pay for, and this they can readily do by foreclosing their mortgages. Should a majority of the bondholders do this, and then devote the entire net earnings to the improvement of the road for a few years, they would have a magnificent property, capable of yielding them great profits.

THE NEW YORK RAILROAD REPORT.

The State Engineer and Surveyor's Report on the Railroads of New York, for the year ending with September, 1874, appeared in the latter half of September, 1875, so that whatever merit its contents may have, freshness is not one of them. The latest date at which any of the companies' reports was received at the State Engineer's office is reported to have been February 15. The preparation of the report is not a very serious matter, and in fact this one was submitted February 15, and was ordered printed March 30. If the State printer had done his duty, the work ought to have appeared months ago. The Massachusetts Report, also covering the year ending with September, and with a much greater amount of labor in the editing of the returns, appears usually before the end of January, so as to be of some use to the Legislature. The New York law requires that the companies report by the 1st of December, which they ought to be able to do and ought to be made to do. As it is, the returns of the companies are not generally accessible to the public until they have become ancient history, as railroad affairs go, and give no sufficient indication of the current condition of the affairs of any company. The returns, as soon as they are handed in, can be seen on application at the State Engineer's office; but this does not help the great mass of those interested in the financial condition of railroads, and the failure of many New York companies to publish reports to their stockholders makes this delay especially undesirable.

The New York report is based upon a form of returns for the companies fixed by a law of the State passed twenty-five years ago. It has many good provisions. but needs revision badly, and especially needs the active supervision and attention of an expert official who can give his whole time to it for a part of the year at least. There are always many mistakes and omissions in such returns, and before they are finally accepted some one should examine them carefully, and require the company to explain this, supply that, and correct the other statement in the report. Some of the requirements in the form of report are themselves vague, and one never feels certain that they have been correctly understood by those filling them out, even if he understands them himself. With some amendment, careful supervision and compilation, and an early publication, the report would be an extremely valuable body of statistics.

The report begins with a list of the railroad companies incorporated during the year, thirty in number, and a list of the enactments of the Legislature of 1874 respecting railroads, 54 in number. Then comes an abstract of the reports of the companies, in which the items given for each company in its report are summed up to give a general view of the railroad system of the whole State, and some deductions from the reports are printed, among which are tables showing the receipt and expense per ton per mile on several of the principal roads of the State for thirteen years, and one giving the amount of each item of expense per train mile on eighteen different railroads for 1873–74. Not the least valuable part is a short table giving in alphabetical order a list of the companies whose roads are leased, with the names of the lessee companies following. Another with a great deal of historical interest gives the years in which each railroad or part of a railroad was opened for travel. The report also contains the general railroad law of 1850 with the amendments, and the other general laws relating to the railroads of the State, covering 124 pages, when we come to the tabulated results compiled from the company reports, giving, under 102 general heads for steam railroads and 62 for horse railroads, for each railroad what is given elsewhere in the return made by the company. This is followed by a comparative statement for five consecutive years of capital stock paid in, funded and floating debt, cost of road and equipment, number of passengers and tons of freight carried one mile, expenses of maintenance of road, of repairs of machinery and of working road, earnings from passengers and freight, transportation expenses, interest payments, dividends, and number of persons injured by accidents for each company in the State—a very valuable feature.

This is the part of the work compiled, filling the first 350 pages; the rest is occupied by the returns of the companies separately, those of steam railroad companies covering 497 pages, those of street railroad companies 212.

From the report just issued and the previous one we compile the following comparative statement of the condition, working and results of the railroads of New York for the two years:

	1873–74.	1872–73.*	Increase.	P. c.
Capital stock paid in	$402,365,070 95	$397,201,551 81	$5,163,519 14	1.3
Funded debt	291,681,017 17	250,422,703 05	41,258,314 12	16.5
Floating debt	30,801,657 06	30,157,223 51	644,433 55	2.1
Total	$724,847,745 18	$677,781,478 37	$47,066,266 81	6.9

The cost of roads and equipment is reported as about $96,000,000 less than sum of stocks and bonds. Of the cost, $76,474,883 was for rolling stock—$8,944 per mile of road:

	1873–74.	1872–73.	Increase.	P. c.
Length of main line	6,574.04	6,324.09	249.95	4.0
Length of branches	1,977.51	1,884.91	92.60	5.0
Total length of road	8,551.55	8,209.00	342.55	4.2
Length of second track and sidings—				
On main line	3,650.25	2,893.92	756.33	26.1
On branches	305.97	92.05	213.92	232.5
Total length of track	12,507.77	11,194.97	1,312.80	11.7

The length of main line within the State of New York was 5,210.88 in the latter year, against 4,927.31 miles in 1872–3. Assuming the entire mileage of branches to be within the State, there was 7,188.39 miles of railroad in New York Oct. 1, 1874, against 6,812.22 miles a year earlier. That is, there were so many miles of railroad if the companies, in filling up the blank for "length of road" and "length of road in State," have not included that which is given lower down as "length of branches." That there are enormous errors somewhere is indicated by the fact that in the table of mileage opened each year from the first railroad constructed, the sum is but 5,312.56 miles, which is but 102 miles greater than the total length of main line given by the report elsewhere as within the limits of the State. And while this table gives the mileage opened within the last year, ending with Sept. 30, 1874, as 177.27 miles, it gives as the total main-line mileage 283.57 miles more than for the preceding year, and as the mileage of branches 92.60 miles more, making 376 miles in all. In the report, however, all the results are distributed for a total mileage in and out of the State covered by the reports of the companies, amounting to 8,551 miles in 1873–74 and to 8,209 for 1872–73.

The work of construction during the year reported was chiefly in second tracks and sidings, and was really very large, amounting to an addition of one-ninth to the total mileage of track, and as it occurred during the year immediately following the panic, it is the more remarkable. The increase of capital was greater in proportion than the increase in new road, but not nearly so great as the increase in new track. The average addition to capital per mile of new track was, however, $35,846. Of course, the new capital was not all for the new track.

The rolling stock on these roads was:

	1873–74.	1872–73.	Inc. or Dec.	P. c.
Locomotives	2,566	2,543	Inc. 23	0.9
First-class passenger cars	1,610	1,631	Dec. 21	1.3
Second-class passenger cars	262	261	Inc. 1	0.4
Baggage, mail and express cars	709	730	Dec. 21	2.9
Freight cars	54,876	59,289	Dec. 4,413	7.4

Thus there was little change in the equipment, except in freight cars, in which there was a large *decrease*.

The business of the two years is exhibited below:

Train mileage—	1873–74.	1872–73.	Decrease.	P. c.
Passenger	18,465,830	19,507,509	1,041,679	5.5
Freight	43,953,254	45,104,575	1,151,321	2.6
Total	62,419,084	64,612,084	2,193,000	3.4
Traffic—	**1873–74.**	**1872–73.**	**Inc. or Dec.**	**P. c.**
Passengers carried	34,719,018	34,996,357	Dec. 277,339	0.8
Passenger mileage	1,108,107,902	1,127,973,832	Dec. 19,865,930	1.8
Tons of freight carried	33,555,595	34,358,119	Dec. 802,524	2.3
Tonnage mileage	4,495,945,932	4,419,181,946	Inc. 76,763,986	1.8

There was an absolute increase in the amount of business, though a very trifling one, owing to the longer average haul of freight, but the number of tons and passengers carried was somewhat smaller. The passenger mileage, less by only 1.8 per cent. than for the previous year, was done with a passenger-train mileage less by 5.3 per cent., and a freight-train mileage less by 2.6 per cent. carried a tonnage mileage 1.8 per cent. greater. The average passenger-train load increased from 57.82 to 60 persons; the average freight-train load, from 97.97 tons to 102.29.

The earnings of the roads for two years were:

	1873–74.	1872–73.	Inc. or Dec.	P. c.
Passenger	$25,369,850 89	$26,581,694 06	Dec. $1,211,843 17	4.5
Freight	65,085,604 32	70,693,323 10	Dec. 5,607,718 78	7.9
Other	7,495,618 73	7,229,706 12	Inc. 265,912 61	3.7
Total	$97,951,073 94	$104,504,723 28	Dec. $6,553,649 34	6.3
Work'g exp's	65,848,132 54	70,935,251 38	Dec. 5,087,118 84	7.2
Net earn'gs.	$32,102,941 40	$33,569,471 90	Dec. $1,466,530 50	4.4

* None of the figures in this column agree with those given in the report for 1872-73, and the total is no less than $130,000,000 more than that report shows. We have taken the figures given for 1872-73 in the report for the following year.

There was thus a decrease in earnings, expenses and net earnings, not very great in the total, but, as proceeding from a larger mileage, larger in proportion than appears above.

The decrease in earnings per mile was just one-tenth, and in net earnings per mile about one-twelfth. The distribution of expenses as given by the reports was:

	1873–74.	1872–73.	Decrease.	P. c.
Maintenance of road-way	$17,987,215 71	$19,774,498 32	$1,787,282 61	9.0
Repairs and machinery	12,209,769 48	12,457,479 66	247,710 18	2.0
Operating the roads	35,890,989 73	38,163,808 94	2,272,819 21	6.0
Total working expenses	$66,087,974 92	$70,395,786 92	$4,307,812 00	6.1

It will be observed that the sum of the items of expenses exceeds the amount given as total expenses from 1873–74 and is less than that of 1872–73.

The payments in addition to working expenses were as follows:

	1873–74.	1872–73.
Interest	$10,476,279 37	$11,467,156 92
Dividends	11,712,066 00	18,667,583 36
Carried to surplus fund	3,151,958 62	605,616 75
Other	10,157,576 23	7,923,900 25
Total	$35,497,880 22	$38,664,257 28

These amounts exceed considerably the net earnings.

The interest paid is seen to have been less by about 9 per cent. last year, though the funded debt had increased 16½ per cent. This was due doubtless to the failure of several companies to pay the interest which they owed. But the decrease in dividends is fearful—nearly 37 per cent. and amounting to almost $7,000,000. *The average dividend was* 4.70 *per cent. in* 1872–73 *and but* 2.91 *per cent., in* 1873–74. The large amount of the "other" unclassified expenditures, however, amounting for the last year to nearly as much as either interest or dividends, makes this statement of payments unsatisfactory.

A statement of the items per mile of road, and other units, will enable us to understand better the railroads of the State:

Per mile:	1873–74.	1872–73.	Inc. or Dec.	P. c.
Stock	$47,008	$48,386	Dec. $1,378	2.9
Funded debt	34,115	30,506	Inc. 3,609	11.8
Floating debt	3,602	3,675	Dec. 73	2.0
Total stock and debt	$84,725	$82,567	Inc. $2,158	2.6
Miles of track per mile of road	1.463	1.363	" 0.100	7.3
Locomotives	0.300	0.313	Dec. 0.013	4.1
First-class coaches	0.188	0.199	" 0.011	5.5
Second-class	0.030	0.032	" 0.002	6.3
Baggage, mail and ex. cars	0.083	0.089	" 0.006	6.7
Freight cars	6.420	7.222	" 0.802	11.1
Passenger train mileage	2,100	2,376	" 216	9.0
Freight train mileage	5,140	5,495	" 355	6.5
Passenger mileage	129,603	137,407	" 7,804	5.7
Tonnage mileage	525,842	538,334	" 12,492	2.3
Passenger earnings	$2,967	$3,238	" $271	8.4
Freight earnings	7,612	8,612	" 1,000	11.6
Other earnings	876	880	" 4	0.5
Total earnings	$11,455	$12,730	Dec. $1,275	10.0
Working expenses	7,702	8,641	" 939	10.9
Net earnings	$3,755	$4,089	Dec. $336	8.2
Interest paid	1,225	1,341	" 116	8.7
Dividends	1,370	2,274	" 904	39.7
Per passenger per mile: Receipt	2.289 cts.	2.337 cts.	" 0.048	2.9
Per ton per mile: Receipt	1.448 cts.	1.600 cts.	Dec. 0.152	9.5
Percentage of expenses	67.2	67.9		
Average per train mile: Of passengers	60.00	57.82	Inc. 2.18	3.8
Of tons of freight	102.29	97.97	" 4.32	4.4
Receipts per train mile	$1.569	$1.617	Dec. 0.048	3.0
Expenses " "	1.055	1.099	" 0.044	4.0
Profit " "	0.514	0.518	" 0.004	0.8

This, which is the best exemplification of the comparative condition of the New York railroads for the two years, shows a decrease in every item of traffic, receipts and profits, co-incident with a small increase of mileage of road and a large increase of track mileage, but a *decrease* in every item of equipment. While the average rate received for carrying passengers fell but a trifle, the freight rate was lower by 9½ per cent. Had the rates been as high for the second as for the first year, both gross and net earnings would have been greater by $6,918,857—$735,725 from passengers and $6,183,132 from freight, which would leave sufficient to add 1.72 to the average dividend of 2.91 per cent. actually paid.

The statistics of train and traffic mileage show that there was an average of a trifle less than three passenger trains and of 7.04 freight trains each way every day in the year, including Sundays; the average passenger train conveying just 60 passengers, the average freight train 102.3 tons of freight, so that the entire traffic was equivalent to a daily movement in each direction of 180 passengers and 720 tons of freight over all the railroads of the State.

Of the freight carried, according to the classification adopted in the form of report, which strangely omits minerals, the proportion of each class was as follows:

	Per cent.		Per cent.
Products of the forest	6.7	Manufactures	6.8
Products of animals	6.1	Merchandise	7.8
Vegetable food	13.6	Other articles	55.0
Other agricultu'l products	4.0		

The "other articles," forming more than half of the total, were doubtless chiefly coal and ore. The total of agricultural products is only 23.7 per cent. of the whole tonnage. These and the manufactures and merchandise, however, doubtless formed a much larger proportion of the total traffic than their tonnage indicates, as they afforded most of the traffic hauled long distances.

The following is the table of receipt, expense and

profit in cents per ton per mile on the leading railroads of the State for 1873-74:

	Receipt.	Expense.	Profit.
Syracuse, Binghamton & New York	1.24	0.75	0.49
Lake Shore & Michigan Southern	1.25	0.83	0.42
Erie	1.31	0.91	0.40
New York Central & Hudson River	1.46	0.98	0.48
Boston & Albany	1.82	1.44	0.38
Ogdensburg & Lake Champlain	2.22	1.44	0.78
New York & Oswego Midland	2.28	2.39	0.11*
Albany & Susquehanna	2.28	1.65	0.63
Rome, Watertown & Ogdensburg	2.85	2.49	0.36
New York, Boston & Montreal	11.31	10.27	1.04
Fonda, Johnstown & Gloversville	12.94	11.67	1.24

* Loss.

We have found so many errors in the figures of the report while making the compilations for the tables given above that we cannot regard the results we have presented as unquestionable statements of fact. They are taken from or based upon the report, and of course have no more authority than their source.

A Road-Masters' Conference.

Mr. John M. Goodwin, in describing the origin of his paper on "Crossing Signals" in a communication to this paper some time ago, gave an account of the conferences of officers of the Atlantic & Great Western Railroad, at which various questions relative to the business and policy of the road were considered. Now the Chief Engineer of that road, Mr. Charles Latimer, has extended the idea by holding a conference of the officers in his department. Not only did he call and hold a meeting of them, but he had the proceedings reported and printed, and the result is a pamphlet of thirty-six pages, which contains, besides what is valuable chiefly to the road on which these gentlemen work, many hints as to the kind of work that may be done at such meetings which other railroad men will find worth considering, and which may properly be presented in these columns, notwithstanding the fact that the very first words on the pamphlet are "Not for general circulation."

At this meeting, which was held June 24 last, there were present the Chief Engineer, the Assistant Engineer, the eleven road-masters, the Superintendent of Bridges and Buildings the Fence Agent, the Foreman of Rail Shop, and the Track Clerk; the Chief Engineer, who called the meeting, presiding.

The Chairman, having urged the road-masters to express their opinions freely, without regard to others' opinions, and especially without regard to his opinion, first called their attention to a model of a machine for clearing snow from track, to be worked by men, and called for opinions as to its probable efficiency. All kinds of opinions were expressed, but most thought it worth trying, and it was decided to have one made.

Next followed a report from each road-master on the wear of rails of different kinds on his sub-division. In most cases, indeed, the reports gave the results on each section, but the report of the meeting gives them only for the sub-divisions. The rails are designated by the name of the mill which supplied them, when known, and the contents of a report may be judged by the following, which is a part of the report of Mr. Armstrong, of Sub-Division No. 1, with letters substituted for manufacturers' names:

"My report gives the iron as I found it. Old iron in track and laid from 1868 to 1871, 178,318 feet; removed from May 1, 1873, to date, 141,837 feet, or 79 per cent. 'A' steel top, laid in 1871, 9,419 feet; removed from May 1, 1873, to date, 350 feet, or 4 per cent. 'B' steel top, laid in 1872, 29,207 feet; removed from May 1, 1873, to date, 450 feet, or 1½ per cent. 'C' steel, laid in 1872, 52,736 feet; removed from May 1, 1873, to date, 80 feet, or 1-17 per cent. 'D' iron, laid in 1873, 8,451 feet; removed from Jan. 1, 1874, to date, 1,232 feet, or 14½ per cent. 'E' iron, laid in 1873, 29,188 feet; removed from Jan. 1, 1874, to date, 10,365 feet, or 35 per cent. 'F' iron, laid in 1873, 27,311 feet; removed from Jan. 1, 1874, to date, 2,408 feet, or 8¾ per cent. 'E' iron, laid in 1874, 9,000 feet; removed from Jan. 1, 1875, to date, 1,232 feet, or 13¾ per cent. 'F' iron, laid in 1874, 29,069 feet; removed from Jan. 1, 1875, to date, 616 feet, or 2 per cent. 'G' iron, laid in 1874, 19,698 feet; removed from Jan. 1, 1875, to date, 424 feet, or 2 per cent. * * * * *

"There are two miles of the 'E' iron now in track which has been cut up and the bad pieces taken out; but the whole of it ought to come out this summer. I think it will take about a mile of new iron to put the 'F' iron, and a quarter of a mile to put the 'G' iron in good shape for next winter. All the old iron will have to be taken out this season; it is only fit for side-tracks and rolling mills. The 'D' iron will not stand another winter, and will have to be re-laid. I am taking out enough 'A' and 'B' steel [top] to keep them good for a year where I am laying steel rail."

Other reports give not only the number of rails removed, but the number battered but left in track, and the number of each on straight line and on curves, and on the inside and outside of curves.

In reply to a question whether the wear on the inside is always more than on the outside of a curve, the following answers were given: "Always on a one-degree curve." "I find it about equal on a 4.45 curve." "About equal on a two or four degree curve if the elevation is ¾ in. to a degree." "All I have found are battered most on inside." "I take out nearly two bars on the inside to one on the outside." "A two-degree curve wears faster on the inside." "At proper elevation about equal."

Throughout these reports, the Chief Engineer asked questions as to the various points—the wear of some quite new iron, the behavior of certain joints, etc.

There was a long discussion on the comparative value of steel and iron rails, in which various opinions were given, no one apparently having had enough experience with steel to feel quite sure as to the limit of its durability. One man had known a steel rail to outlast five iron rails; another said that on the Erie where there was steel for five miles on one side of the track and iron on the other, the iron had been renewed eight times while the steel was good yet. Others thought that steel would last ten times, five times, twelve times, four times, five or six times, and seven times as long as iron. One road master said: "A road master on the Pennsylvania Railroad had been 21 years on the road, and did nothing but repair track. He and I were together till a year ago this month. He had removed but 30 per cent. of the steel rails on his road after 12 years' wear. He had about the heaviest steel rail on the road—70 lbs. to the yard. There was an average of 36 trains a day—three engines and about 50 cars to a train." Another knew a yard where the best iron wore out in three months. Steel rails weighing 70 lbs. per yard were put in. Some of these have been in two years and a half, and the joints do not show much wear. In the Meadville yard of their own road steel rails had served three years and five months, while iron wore out in three months. The enginemen agreed that they could haul one car more on steel than on iron rails through a certain curve on the road.

In the Cleveland yard steel rails still good had outworn twelve iron rails. One road-master believed that more steel than iron rails were broken in winter. These breakages were generally at the holes for the joints. They were not caused by the heaving of the rails. Some of the road-masters had had several steel rails broken by flat wheels, as they believed. None had been broken where the double joint was used.

There was an exchange of opinions on a new frog which had been tried on the road and the standard switch of the road. One man said: "There is an objection to split switches in getting one rail higher than the other—the shoulder rail ⅛ in. higher than the point between the spike and the rail. Consequently it will ride right along on the rail and drop off at the point." There was quite a discussion on this point, and it was suggested that certain derailments might have been caused in this way.

Concerning the value of screw spikes, one road-master would not use them instead of the other spikes except on bridges, crossings, switch-stands and head chairs.

On the economy of the double joint experiences were reported. Complaint was made about irregularity in slotting the rails. Most of the road-masters preferred the double joint for steel, but not for iron; one, for iron that would last as long as five years. A new spike which had been tried was not generally approved.

Another interesting subject discussed was the use of cinder for ballast. One road-master thought it a good thing for yards; it was dry, clean, elastic, and not dusty. Another liked it for yards, but found it too light for main line. A third found it very good for repairing track, especially in winter. He found that the iron wore better on cinder ballast. A fourth approved it also. A fifth found it good on main line also when the rails were good. Where iron was battered it sifted out. A fifth found it good in yards but not on curves, being too soft. A sixth liked it for yards, but not for main track; a seventh, where it would not wash out. An eighth liked it very well where the coal was burnt to a cinder. It was not good under a tie. Some coals made better cinders than others. The ninth and tenth recommended it everywhere. One of them found furnace cinder the best. The last opinion we quote:

"There is one important point: it should be broken up small. It does not pay to get it in large lumps and break it. If the hot lump as it comes from the furnace can be brought in contact with cold water, it will fix it nicely. This cinder is used extensively by the Philadelphia & Reading road, and they have had a very large experience. It seems to absorb the heat of the sun. I have noticed that myself, and have seen probably six inches of well packed snow outside the rails, and the road-bed perfectly dry. In quite cold weather, when there is no indication of snow thawing on the outside, you will find it will thaw on the inside of the rails. I have known instances where it has been used on turnpikes."

The next subject was the method of ballasting and "shouldering out." The Department had adopted a surface sloping from two inches above the top of the tie at the center to two inches above the bottom of the tie at the ends. The inquiry was made whether that was satisfactory. The first reply was that it was not. The speaker would always fill even with the top of the tie, but not above it and slope from the center so that a shovel would pass between the ties at the base of the rail, leaving the ends of the rails clear. He called it the cheapest by a fourth, the dryest and cleanest, requiring a fourth less labor, leaving more space for snow and being the more uniform. He said that on the Lake Shore road, the best ballasted road in the country, where the rule is to fill three inches above the top of the tie, there is no uniformity, some places having that height and some not being filled above the tie at all. Another road-master agreed with him. A third filled out and had no trouble. A fourth filled just even with the top of the tie when he had good clean gravel, but with inferior gravel would not shoulder out. Another would have nothing against the end of the tie. The last report was: "I have 51 miles of track with ends of the ties all clear. My track is filled even with the center of the tie. It compares well with any ballasting on the road; and I have not had a gravel train in two years." Chairman—"Don't you want one?" Road-master—"Yes, sir; want one badly."

Then followed a little talk as to the best claw-bar and the best pick, and then a discussion on the durability of ties of different kinds. The first speaker said that white oak or chestnut would last from six to twelve years; hemlock, from four to six, depending upon the kind of iron on it. Cherry was no better than hemlock, and the most deceitful tie in use. It would appear to be all right when there was nothing left of it. The second speaker agreed with the first, but the third had always supposed cherry to be as good as anything—as durable as white oak—and the fourth agreed with him. The fifth agreed with the first, and said that red beech made a very good tie. The sixth had white-oak ties which had been in nine years, and reckoned walnut and chestnut next to them, if they could be kept from splitting. Black oak or pin wood was not worth buying. The next two gave eight years as the life of a white-oak tie. The ninth would use nothing but white oak. The tenth thought this wood best, but had seen some red hickory on one of the divisions which had lasted nine years. One road-master knew of a locust tie that had been in thirteen years.

There was then a conversation on fencing, repairs of fences and disposition of old ties and other refuse timber. All favored a post and rail fence as the best. The best way of preventing the burning of fences attracted some attention; some would cultivate the ground along the track, some seed it down to clover, some keep the weeds cut down, some cut the grass in the spring. The Chief Engineer directed that the section men should be allowed to have the grass that grows on the right of way.

The Chief Engineer then inquired as to a new track level and string. All were using it. One went over his division with it and measured every curve himself and marked the figures on the telegraph poles. The Chief Engineer recommended that every section foreman be taught to use the level—indeed, that they be taught everything that the roadmasters themselves had to do, and be prepared for promotion.

There was, then, a comparison of the expenses on the different divisions, as shown by the monthly report, a sample of which we published some time ago. The Chief Engineer thought that on the whole it was the most creditable showing the road ever made. A long discussion on laying track by three of the road-masters is very briefly reported. "The opinion seemed to be general that when the track is changed from 'joint on tie' to 'suspension joint,' the new rail should be first laid, and the ties changed afterwards." After inquiries as to the obeying of rules as to piling ties and keeping clean depot buildings and out-houses, there were reports as to observations on the speed of freight trains—a matter in which road-masters wishing to show a good record for economy have a special interest, while they have excellent opportunities for observation.

Finally, the Chief Engineer requested them all to keep in view those of their subordinates whom they would like to recommend as their own successors should they for any reason leave the road.

The above is chiefly a very concise abridgment of the report of the proceedings of this conference, which Mr. Latimer has had printed. The abridgement is certainly much dryer than the report; but we hope it is yet sufficient to indicate the value of the information imparted to those present, and especially to the Chief Engineer. Possibly most of the information could be got by requiring written answers to a list of printed questions, but probably much of it would not. Men of every class have a great deal suggested to them by each other's conversation, and moreover, at such a conference, some things are sure to be brought up that the Chief Engineer would not think of asking for. It seems to us an excellent method of consolidating, as it were, the experience of the whole force of a department, and probably it could be extended with benefit to other departments than that of maintenance of way. There need be very little expense about it; the occasion is likely to be pleasant to all concerned, and the meeting of all the officers of a department is likely to cultivate a spirit of healthy emulation and a desire to do one's best, not easily developed in the average man who rarely comes in contact with men of similar occupations.

Record of New Railroad Construction.

This number of the *Railroad Gazette* has information of the laying of track on new railroads as follows:

New York & Canada.—The track has been extended from Port Henry, N. Y., northward 11 miles to Westport, and at the other extremity of the line track has been laid from Plattsburg southward 34 miles to Whalonsburg—45 miles in all.

Rome, Watertown & Ogdensburg.—The *Lake Ontario Division* has been extended westward 6 miles to Kendall Corners, N. Y.

St. Louis, Bloomfield & Louisville.—The first track is laid, from Switz City, Ind., east to Bloomfield, 6 miles.

This is a total of 57 miles of new railroad, making 861 miles completed in the United States in 1875, against 1,125 miles reported for the same period in 1874, 2,867 in 1873, and 5,066 in 1872.

The Institute of Mining Engineers is to hold its autumn meeting in Cleveland, beginning on the evening of the 26th inst. Excursions will be made to the Mahoning block coal fields, the Tuscarawas black band ore mines, to Kelly's Island, and to various steel, iron and oil works in Cleveland and vicinity. Members from New York and other places further east are recommended to take the Pennsylvania Railroad train from New York at 5 p. m. on the 25th. Headquarters in Cleveland are at the Kennard House.

Contributions.

The Resignation of Mr. Albert Fink.

New York, October 12, 1875.

To the Editor of the Railroad Gazette:

I send to you with this a copy of the Louisville *Commercial*, with a notice of the resignation of Mr. Albert Fink from the vice presidency and management of the Louisville & Nashville Railroad. These editorial remarks are so true and important that they deserve, I think, a place in your journal.

[The following is the article]:

"The resignation of Mr. Albert Fink, as Vice President and General Superintendent of the Louisville & Nashville Railroad, is announced. Mr. Fink has been connected with the road, in one capacity or another, for the past eighteen years. The reasons for his resignation are not given, though they are stated to be entirely private, which means, we suppose, that it is none of the public's business what they are.

"In the absence, however, of any explanation of Mr. Fink's retirement, we can only say we think it a serious misfortune to the stockholders of the road, and that it will be very hard to replace him, for we regard Mr. Fink as one of the most capable, assiduous and intelligent railroad men in the country. He is not only a practical railroad man in the ordinary sense of the word, but he possesses, besides, what many so-called practical railroad men do not, a thorough theoretic understanding of the transportation problem in all its minutiæ and branches. That this is so, our readers can easily satisfy themselves by reference to his recently published pamphlet on "Cost of Railroad

Transportation," etc. We are not acquainted with any publication which contains within the same space so lucid, broad and conclusive a treatment of its subject matter. In order to help them to realize how much they have lost in losing Mr. Fink, we would recommend to the stockholders the perusal of this work. It is no disparagement to the remaining officers and managers of the company to say there is not one among them possessed of the requisite knowledge and experience to make such a meritorious contribution to the transportation question as this of Mr. Fink's.

"Now why Mr. Fink should desire to give up a position which he is so pre-eminently qualified to fill, and why the directors of the road should not strenuously seek to retain him, is a matter which we don't understand. But the stockholders will probably be informed of the real cause at their meeting next month. At any rate, we have to repeat that in the resignation of Mr. Fink the Louisville & Nashville Railroad Company has lost its very best man. For assiduity and intelligence in the discharge of his functions, and for perfect mastery of all the details and principles of railroad management, Mr. Fink has probably no superior in our country.

"The stockholders will not fail, we suppose, to bear public testimony of their appreciation of his value at their forthcoming meeting. In our judgment, the resignation of Mr. Fink forebodes more harm than good to their interests. It is not a good sign."

When the editor says that there is not another man on the direction of that railway possessed of the knowledge and experience requisite to produce such a document as has recently come from the pen of Mr. Fink, on railway transportation and railway economy, he might have gone further and said there was probably not another man in the United States; at least, none have come out with such papers, and shown equal ability; there has not certainly loomed up under my vision any such paper from any railway pen in this State. Charles Francis Adams, Jr., and President Gowen, of the Reading Railroad, have given us some valuable papers on railway economy, but neither of them has that practical knowledge of detail in railway matters possessed by Mr. Fink. It strikes me that if you reproduce these Louisville remarks in your journal, it might induce some of the "wiseacres" in charge of railway management in this country, who are fast running the railway interests to ruin, to get Mr. Fink's paper on railway transportation and study it with care—it might induce some of them to keep such statistics as are required to know the line of true economy. Without such data carefully recorded, how can any of the railway presidents and superintendents attempt to refute the silly arguments of our shallow-pated legislators when they get up and spout "buncombe" for the benefit of their constituents among the Grangers, and try their hand at regulating railway rates by special acts? Why do they not try to regulate the cost of growing a bushel of corn, or the quantity grown on an acre? There are, apparently, a number of the wise ones of the West who have not yet discovered that they live a thousand or more miles from the seaboard, and should not expect to send a bushel of corn to Liverpool as cheaply as a bushel grown near tide water.

As to keeping railway statistics, it really appears as if it would give some of the railway managers a headache to even think of keeping a record of the running of their wheels; and yet, without a record of this kind, how can any of them tell anything of the economy or waste in this important item of railway expenditure? Captain Tyler, R. E., in his report on the Erie Railway, gives the life of the different make of wheels, showing that some of the wheels had only six per cent. of the life of others. Now, as far as I know anything of the wheel trade, there is not over ten per cent. difference in the price of the best wheel, made of pure Salisbury iron, and that of the poorest and most worthless wheel made in the country. How few of the railway managers know this, and how few are there who will pay twenty dollars for a wheel when they can get one of the same size and weight, made of inferior iron, for eighteen dollars? Yet if the last named has only six per cent. of the life of the former, it must be a most costly wheel. Let us see what figures say in making the comparison. Suppose we call the life of the $20 wheel 100,000 miles, run in two years (this is not an extravagant estimate when the climate, gradients, curves, speed and loads are not severe; I have had a longer life than this out of every wheel on a railway in South America, the wheels being made of pure Salisbury iron), and that its cash value as old iron, when worn out, is half its first cost; the cost per year would then be $5, or 10 cents per 1,000 miles run. In the case of the $18 wheel, with six per cent. of the life of the former, there would be 16⅔ wheels worn out in the two years. Crediting the old wheels with bringing half price, the cost in two years would be $300, or $150 for one year, or $3 per 1,000 miles run. This estimate does not take into consideration the cost of taking off and putting on 15⅔ wheels in the two years, the loss of the time of the car while in the shop, and the risk of a terrible accident from a broken wheel, the result of using poor iron. I have in this comparison taken an extreme case, but it is drawn from wheels reported to actually exist, or have recently met with sudden death on the great and notorious Erie Railway. If any one wishes to amuse himself with railway figures, let him take the above data and apply it to a railway with 100,000 wheels. Allowing the $18 wheel to have a life of 50 per cent. of the best (the $20 wheel), and find out the yearly economy resulting from using the highest priced wheel—it is *four hundred thousand dollars*, and it is $200,000 supposing the run to be 25,000 miles a year, instead of 50,000.

In writing this paper on cost of railroad transportation, railroad accounts, and government regulation of railroad tariffs, Mr. Fink has done the railway interests a great service. It remains to be seen if the railway managers, and the legislators, who undertake to handle questions on tariff and finances that they are utterly ignorant of, will read this valuable and important paper, and learn how to think before they speak.

I would most urgently call their attention to Mr. Fink's chapters on "Comparison between Railroad and Other Transportation,"

"Governmental Regulations of Railroad Tariffs,"

"Principles on which Railroad Tariffs must be constructed,"

"Just and Unjust Discrimination,"

"Governmental Railroad Tariffs a Failure," and

"Prevention of Extortion and Unjust Discrimination."

When these chapters are all read, and inwardly digested, let them go to work and remedy the evil they have created through bad management and bad legislation.

Mr. Fink has shown that some of the legislation of recent years is the equivalent of confiscation.

Let us have free railroads—there is no fear but that many of them will fight until they exterminate the stockholders' interests, and produce results similar to the Kilkenny cat affair, without the interference of any Legislature.

W. W. EVANS.

General Railroad News.

PERSONAL.

—Mr. M. H. Angell will, it is said, soon resign his position as General Superintendent of the European and North American Railroad, to become President of an insurance company in Bangor, Me.

—Gen. W. J. Sewell, Superintendent of the West Jersey Railroad, has been renominated for State Senator by the Republicans of Camden County, N. J.

—Mr. Henry R. Pierson, having been nominated for State Senator by the Republicans of the Albany (N. Y.) district, has declined, on the grounds that the nomination might be misinterpreted, and also that his duties as an officer of the New York Central & Hudson River Company would prevent his giving full attention to the legislative duties which would be imposed upon him in case of his election.

—Col. W. R. Arthur has resigned his position as General Superintendent of the St. Louis, Kansas City & Northern Railway, for reasons not made public.

—Mr. W. S. McCoy, formerly Ticket Agent of the Baltimore & Ohio Railway, Camden Station, and for the last fifteen years Traveling Passenger Agent for the Baltimore & Ohio in connection with the Marietta & Cincinnati and Central Ohio, has resigned his position.

—Mr. W. E. Hobbs has resigned his position as General Passenger and Ticket Agent of the Logansport, Crawfordsville & Southwestern Railroad.

—There is a report that Gen. P. G. T. Beauregard is to succeed Mr. Fink on the Louisville & Nashville road. General Beauregard's railroad experience has been as President of street railroad companies in New Orleans.

—Henry B. Milliken is the man who runs the engine on the fast mail train between New York and Poughkeepsie. In the account of the first trip in the *Railroad Gazette* he was called "Pat Milliken," and other newspapers, having had occasion to name him in connection with fast trains of late, have called him "Pat" quite often. He protests that his name is as he has signed it for some twenty years on the Hudson River Railroad payrolls—HENRY B. MILLIKEN.

ELECTIONS AND APPOINTMENTS.

New York, New Haven & Hartford.—Mr. W. A. Waterbury, of Bridgeport, Conn., has been appointed General Freight Agent.

Northern Pacific.—The President of the new corporation announces the following appointments of officers: General Manager Minnesota & Dakota Division. C. W. Mead, St. Paul, Minn.; Assistant Treasurer, R. M. Newport, Brainerd, Minn.; Agent Land Department, James B. Power, Brainerd, Minn.; General Superintendent Pacific Division and Assistant Land Commissioner, J. W. Sprague, Kalama, Wash. T. These are all reappointments.

Chesapeake & Ohio.—Judge Bond, of the United States Circuit Court, has appointed Mr. Henry Tyson Receiver in the foreclosure suit recently begun. Mr. Tyson was formerly connected with the Baltimore & Ohio (in charge of machinery), subsequently President of the Baltimore City Railroad Company, and for a time, under the Watson administration, Fourth Vice-President of the Erie.

Western Union Telegraph.—At the annual meeting in New York, Oct. 13, the following directors were chosen: Wm. Orton, James H. Banker, A. B. Cornell, H. Durkee, Norvin Green, Joseph Hasker, E. D. Morgan, A. Schell, W. K. Thorn, C. Vanderbilt, Frank Work, Chester W. Chapin, Wilson G. Hunt, David Jones, C. Livingston, James Milliken, Levi P. Morton, John Duff, O. H. Palmer, G. M. Pullman, E. S. Sanford, John Steward, Moses Taylor, Daniel Torrance, W. H. Vanderbilt, W. R. Vermilye, E. B. Wesley, D. O. Mills, E. D. Worcester.

Evansville & Newburg.—This company has been reorganized and the following directors are chosen: O. P. Aiken, Union Bethel, M. Henning, W. E. Hollingsworth, C. F. Hopkins, J. S. Hopkins, J. R. Tilman. The board elected Union Bethel President; W. E. Hollingsworth, Secretary; M. Henning, Treasurer.

Buffalo, New York & Philadelphia.—At the annual meeting in Buffalo, N. Y., Oct. 6, the following directors were chosen: Cyrus Clarke, Thomas Clark, Wm. G. Fargo, James Brayley, George B. Gates, Wm. H. Glenny, C. J. Hamlin, Sherman S. Jewett, George J. Magee, James H. Metcalfe, Bronson C. Rumsey, J. F. Schoellkopf, J. Condit Smith; Inspectors of Election, Josiah Jewett, F. D. Locke, G. L. Williams. The board subsequently elected Bronson C. Rumsey President; Sherman S. Jewett, Vice-President; H. L. Lyman, Secretary and Treasurer.

Memphis & Charleston.—At the annual meeting in Huntsville, Ala., the old board was re-elected, as follows: P. C. Bethel, George P. Beirne, F. H. Cossitt, W. W. Garta, Napoleon Hill, Charles N. McGhee, J. C. Neely, John D. Rather, R. T. Wilson. The board re-elected R. T. Wilson, President; Chas. N. McGhee, Vice-President and General Manager; S. R. Couse, Secretary.

Toledo, Wabash & Western.—At the annual meeting in Toledo, O., Oct. 6, the following directors (one-third of the board) were chosen: Ossian D. Ashley, John W. Ellis, Solon Humphreys, Wm. B. Isham, New York; C. F. Curtis, Toledo. The new directors were the candidates named at the informal meeting held in New York last week.

Paducah & Memphis.—Mr. N. Monsarrat has been appointed General Freight and Ticket Agent. His office will be at Paducah, Ky.

Plymouth, Kankakee & Pacific.—The United States Circuit Court in Chicago has appointed Phineas M. Kent Receiver of whatever may remain of the property of this unfortunate corporation.

Detroit, Eel River & Illinois.—Mr. T. B. Sargeant, late Superintendent of the Bay City & Mackinaw Division of the Michigan Central, has been appointed General Superintendent of this road, in place of A. B. Southard, resigned.

Louisville & Nashville.—At the annual meeting in Louisville, Oct. 6, the following directors (one third of the board) were elected for three years: B. F. Guthrie, H. C. Murrell, Louisville; P. J. Potter, Bowling Green, Ky. Mr. Murrell succeeds G. H. Hutchings, the others being re-elected. The board subsequently chose Dr. E. D. Standiford, of Louisville, President, in place of Thomas J. Martin, resigned; H. Victor Newcomb, Vice-President, in place of Mr. Standiford; W. Ranney, Secretary; A. M. Quarrier, Assistant Secretary. No successor to Mr. Fink was chosen. Dr. Standiford having resigned his position as a director on being chosen President, Mr. G. H. Hutchings was chosen a director in his place. President Standiford has reappointed all the old officers of the road.

Hannibal & Naples.—At the annual meeting in Springfield, Ill., Oct. 8, the old board was re-elected, as follows: C. M. Smith, Jacob Bunn, John W. Bunn, H. S. Leland, Springfield, Ill.; C. L. Higbee, Pittsfield, Ill.; J. K. Moore, Griggsville, Ill.; J. D. Dowling, Hannibal, Mo.; A. B. Baylis, A. M. White, New York. The board re-elected C. M. Smith President, and W. B. Corneau, Toledo, O., Secretary and Treasurer. The road is leased to the Toledo, Wabash & Western.

Hannibal Bridge Company.—At the annual meeting in Springfield, Ill., Oct. 8, the following directors were chosen: A. W. Lamb, Hannibal, Mo.; C. M. Smith, Springfield, Ill.; A. B. Baylis, Azariah Boody, A. M. White, New York.

St. Louis, Kansas City & Northern.—Maj. James F. How, for a long time Secretary and Paymaster, has been appointed Acting General Superintendent, in place of Col. W. R. Arthur, resigned.

Terre Haute & Indianapolis.—Mr. E. D. Carter has been appointed Master Car-Builder. Mr. D. L. Harris has been appointed Roadmaster of the Second Division.

Diamond Line.—Mr. H. F. Clarke, of Toledo, O., has been appointed General Manager, in place of Mr. McLeod, recently appointed General Freight Agent of the Cincinnati, Hamilton & Dayton.

St. Louis & Southeastern.—The directors have elected officers for the ensuing year as follows: Gen. J. H. Wilson, President; C. W. Opdyke, Vice-President; J. F. Alexander, Treasurer; J. P. Hains, Secretary.

TRAFFIC AND EARNINGS.

Railroad Earnings.

The following companies have reported earnings for the various periods given:

	1875.	1874.	Inc. or Dec.	P. c.
Nine months ending September 30:				
Central Pacific	$12,480,183	$10,305,199	Inc.	$2,174,984 21.1
Illinois Central	5,459,207	5,661,814	Dec.	202,607 3.6
Kansas Pacific	2,356,223	2,405,183	Dec.	48,960 2.0
Keokuk & Des Moines	612,312	500,789	Inc.	111,523 22.3
Missouri, Kan. & Texas	2,024,843	2,299,037	Dec.	274,194 11.9
St. Louis, Alt. & Terre Haute, Bellev. Line	401,692	393,804	Inc.	7,888 2.0
St. L., Iron Mt. & So.	2,488,694	2,199,204	Inc.	289,490 13.2
St. L., Kan. City & No.	1,880,843	1,805,778	Inc.	75,065 4.2
Toledo, Peoria & Warsaw	922,953	826,337	Inc.	96,616 11.9
Union Pacific	8,663,427	7,520,184	Inc.	1,143,243 15.2
Eight Months ending August 31:				
Atchison, Topeka & Santa Fe	$841,343	$787,986	Inc.	$53,357 6.8
Expenses	384,897	350,075	Inc.	34,822 9.9
Net earnings	$456,446	$437,911	Inc.	$18,535 4.2
Earnings per mile	1,656	1,551	Inc.	105 6.8
Per cent. of expenses	45.75	44.47	Inc.	1.28 2.9
Month of August:				
Atchison, Topeka & Santa Fe	$152,215	$112,681	Inc.	$39,534 35.1
Expenses	55,610	46,474	Inc.	9,136 19.6
Net earnings	$96,605	$66,207	Inc.	$30,398 46.0
Per cent. of expenses	36.53	41.24	Dec.	4.71 11.4
Denver & Rio Grande	32,761	35,188	Dec.	2,427 6.9
Expenses	19,194	19,471	Dec.	337 1 7
Net earnings	$13,627	$15,717	Dec.	$2,090 13.3
Per cent. of expenses	58.40	55.33	Inc.	3.07 5.5
Michigan Central	527,744	603,835	Dec.	76,091 12.6
Rockford, R. I. & St. Louis	52,751	.....	.....	....
All expenditures	45,365	.....	.....	....
Net earnings	$7,386	.....	.....	....
Per cent. of expenses	86.00	.....	.....	....
Toledo, Peoria & War.	146,484	90,718	Inc.	55,766 61.5
Month of September:				
Central Pacific	$1,561,000	$1,371,739	Inc.	189,261 13.8
Illinois Central	737,834	758,536	Dec.	20,702 2.7
Kansas Pacific	318,111	302,318	Inc.	15,793 5.2
Keokuk & Des Moines	80,539	68,455	Inc.	12,084 17.6
Lake Shore & Mich. So.	1,262,700	1,532,602	Dec.	269,902 17.6
Miss., Kansas & Texas	299,995	334,496	Dec.	34,501 10.3
St. Louis, Alton & Terre Haute—Bellville Line	48,543	55,282	Dec.	6,739 12.2
St. Louis, Iron Mt. & S.	342,800	292,216	Inc.	50,584 17.3
St. Louis, Kan. City & Northern	246,624	249,733	Dec.	3,109 1.2
Toledo, Peoria & War.	136,542	107,338	Inc.	29,204 27.2
Union Pacific	1,042,000	1,063,993	Dec.	21,993 2.1
Third Week in September:				
Cairo & St. Louis	$8,260	.....	.....	....
Week ending Sept. 17:				
Great Western	£16,043	£20,001	Dec.	£3,958 19.8
Week ending Sept. 18:				
Grand Trunk	£37,100	£41,900	Dec.	£4,800 11.5
Week ending Sept. 24:				
Great Western	£17,793	£22,836	Dec.	£5,043 22.1
Week ending Sept. 25:				
Grand Trunk	£41,100	£44,100	Dec.	£3,000 6.8

The following are compared with 1873:

	1875.	1873.	Inc. or Dec.	P. c.
Nine months ending Sept. 30:				
Central Pacific	$12,480,183	$10,198,806	Inc.	$2,281,377 22.4
Month of September:				
Central Pacific	$1,561,000	$1,407,224	Inc.	$153,776 10.9
Lake Shore & Mich. Southern	1,262,700	1,791,375	Dec.	528,675 29.5

Coal Movement.

For the nine months ending Oct. 2 the following tonnages of anthracite coal are reported:

	1875.	1874.	Inc. or Dec.	P. c.
Delaware & Hudson Canal Co.	2,341,155	1,781,286	Inc.	559,869 31.4
Delaware, Lackawanna & Western	2,652,922	1,959,962	Inc.	692,960 35.4
Pennsylvania Coal Co.	1,018,513	998,112	Inc.	20,401 2.0
Central, of New Jersey	1,346,210	1,914,705	Dec.	563,495 29.7
Lehigh Valley	1,989,033	3,086,001	Dec.	1,096,968 35.5
Pennsylvania & New York	79,292	45,958	Inc.	33,334 72.5
Philadelphia & Reading	3,087,155	3,724,995	Dec.	637,840 17.1
Northern Central, Shamokin Division	515,634	336,365	Inc.	179,269 53.3
Summit Branch	395,881	359,022	Inc.	37,859 10.5
Danville, Hazleton & Wilkesbarre	58,667	30,751	Inc.	27,916 88.7
Pennsylvania Canal	199,875	252,309	Dec.	52,434 20.8
Totals	13,684,737	14,489,466	Dec.	804,729 5.6

The increases and decreases due to the long strike are still visible, notwithstanding the long steps made towards equaliz-

ing them since its close. The market, however, is hardly in condition to take a production as great as last year's.

The lines carrying semi-bituminous coal report as follows:

	1875.	1874.	Inc. or Dec.	P. c.
Huntingdon & Broad Top...	160,849	.....	.....	....
East Broad Top.....	33,371	.....	.....	....
Tyrone & Clearfield.....	669,790	486,847	Inc.. 182,943	37.6
Bellefonte & Snow Shoe.....	47,486	.....	.....	....
Cumberland coal, all lines..	1,761,790	1,734,629	Inc.. 27,161	1.6
Totals.....	2,673,286	.....	.....	....

In addition to the tonnage originating on its own line the Huntingdon & Broad Top carries a considerable quantity of Cumberland coal, coming to it from the Pennsylvania's Bedford Division. The total tonnage carried was as follows: 1875, 288,731; 1874, 240,048; increase, 48,683 tons, or 20.3 per cent.

The Cumberland & Pennsylvania and Cumberland Branch report tonnage as follows:

	1875.	1874.	Inc. or Dec.	P. c.
To Baltimore & Ohio.....	837,858	1,070,016	Dec..182,158	17.0
To Bedford Division, Pennsylvania Railroad.....	123,125	59,535	Inc.. 63,590	106.8
To Chesapeake & Ohio C'n'l.	669,613	605,077	Inc.. 64,538	10.7
Totals.....	1,630,596	1,734,628	Dec.. 54,032	3.1

Bituminous coal tonnages are reported as follows:

	1875.
Barclay.....	242,992
Allegheny region.....	163,166
Pittsburgh region.....	478,528
Westmoreland and Penn gas coal.....	492,879
Chesapeake & Ohio, West Virginia coal.....	125,519
Total.....	1,503,084

The Chesapeake & Ohio returns are a week behind the others.

The coal tonnage of the Pennsylvania Railroad was as follows for the third week in September:

Anthracite.....	21,341
Bituminous.....	69,764
Coke.....	8,729
Total.....	99,834

Flour and Grain Movement.

For the week ending Oct. 2 receipts and shipments were as follows, flour in barrels and grain in bushels:

Flour:	1875.	1874.	Inc. or Dec.	P. c.
Lake ports' receipts.....	107,395	140,502	Dec.. 33,107	23.6
" " shipments.....	122,086	123,210	Dec.. 1,124	1.0
Atlantic ports' receipts....	205,529	249,928	Dec.. 44,399	17.8
Wheat:				
Lake ports' receipts.....	2,167,070	2,614,506	Dec..447,436	17.1
" " shipments.....	1,611,632	1,605,242	Inc... 6,420	0.4
Atlantic ports' receipts....	1,052,823	1,678,543	Dec..625,720	37.2
Grain of All Kinds:				
Lake ports' receipts.....	5,012,745	4,960,540	Inc.. 52,205	1.0
" " shipments.....	3,767,358	2,820,543	Inc..946,815	3.4
Atlantic ports' receipts....	3,000,941	3,600,931	Dec..599,990	16.7

The lake ports' receipts are at last absolutely large—greater than in 1873, and exceeded very little in any previous year.

Of the lake ports' shipments of grain, 32⅔ per cent. went by rail this year, against 13⅓ per cent. in 1874 and 14 per cent. in 1873.

Receipts at lake ports, St. Louis and Peoria, for the crop year from Aug. 1 to Oct. 2 were 35,176,911 bushels of grain this year, against 36,610,557 last, a decrease of 4 per cent. Compared with 1873, when the fall grain movement was at once earlier and heavier than ever before, the decrease is 30 per cent.; compared with 1872 it is 19 per cent. The decrease since last year is wholly in wheat, all the other grains showing an increase.

For the calendar year from Jan. 1 to Oct. 1, receipts and shipments have been:

Flour:—	1875.	1874.	Inc. or Dec.	P. c.
Lake ports' receipts....	3,390,398	4,500,080	Dec.. 1,109,682	24.6
" shipments..	3,725,224	4,313,934	" 588,710	13.7
Atlantic ports' receipts..	6,725,804	7,822,603	" 1,096,799	14.0
Wheat:—				
Lake ports' receipts.....	45,307,563	60,306,676	" 14,999,113	25.0
" shipments..	58,995,920	47,237,843	Inc..11,758,077	24.9
Atlantic ports' receipts..	....	....	....	....
Corn:—				
Lake ports' receipts.....	38,567,754	49,000,156	Dec.10,432,402	21.3
" shipments..	34,209,311	38,035,036	" 3,825,725	10.0
Atlantic ports' receipts..	37,705,497	49,216,055	" 11,510,558	23.4
Grain of all kinds:—				
Lake ports' receipts....	107,078,154	135,539,026	" 28,460,872	21.0
" shipments..	108,317,011	102,635,296	Inc... 5,681,715	5.5
Atlantic ports' receipts..	93,050,212	108,824,729	Dec. 15,774,517	14.5

This shows the lake ports' shipments of grain for the nine months to have been greater than last year, and greater than ever before, by nearly 8 per cent. than those of 1873 and by 15 per cent. than those of 1872.

Live Stock at Cincinnati.

The United Railroads stockyards of Cincinnati, which were opened little more than two years ago, have received the following numbers of cattle, sheep and hogs for the two years end-with August last:

	1874-75.	1873-74.	Inc. or Dec.	P.c.
Cattle.....	91,353	85,695	Inc..5,658	6.6
Hogs.....	705,637	773,780	Dec.68,143	8.8
Sheep	100,137	65,786	Inc 34,351	52.2

The weights were in tons:

	1874-75.	1873-74.	Inc. or Dec.	P.c
Cattle	43,148	40,800	Inc..2,348	5.7
Hogs	90,021	96,084	Dec..6,063	6.3
Sheep	4,058	2,662	Inc..1,396	52.5
Total.....	137,227	139,546	Dec..2,319	1.7

Chicago receipts and shipments of grain for the week ending with Oct. 9 were:

	1875.	1874.	Decrease.	P.c.
Receipts, bushels.....	2,003,728	2,228,964	225,236	10.1
Shipments, bushels.....	1,901,530	2,432,295	531,765	21.

Cotton Movement.

For the month of September receipts were 183,406 bales, against 155,288 last year, an increase of 18 per cent. For the week ending Oct. 8, they were 102,402 bales this year and 96,-277 last, an increase of 6¼ per cent.

Petroleum Movement.

From Jan. 1 to Oct. 5 the exports from Boston, New York, Philadelphia and Baltimore were 183,363,960 gallons in 1875, and 189,343,090 in 1874, the decrease being 3⅛ per cent. Compared with 1873 the exports show an increase of 6⅓ per cent.

Pittsburg receipts and its shipments eastward from Jan. 1 to Oct. 2, have been:

	1875.	1874.	Decrease.	P.c.
Receipts, bbls.....	835,344	1,322,903	487,559	37.0
Shipments, bbls.....	528,586	824,246	295,660	36.0

Freight Rates.

New York to Liverpool, by steam, 9¼d. (about 21¼ cents currency); cotton, 7-16d. per pound. Petroleum, from Philadelphia to Antwerp or Bremen, by sail, 4s. 7½d., per barrel—about $1.30 currency. Wheat from Chicago to Buffalo, by lake, 3¼ cents per bushel; corn, 3 cents; from Buffalo to New York, by canal, 7⅛ cents per bushel for wheat and 6¾ for corn.

Delaware Peach Traffic.

The number of car-loads of peaches shipped over the Delaware Railroad from the opening of the season up to and including Oct. 6 was 8,214, or about 548 trains. The season is at an end, the shipments last week falling to a very few cars daily. Most of the cars collected and borrowed from other roads for the traffic have been returned.

OLD AND NEW ROADS.

Pacific, of Missouri.

The Union Trust Company, of New York, as trustee under the mortgages of the St. Louis, Lawrence & Denver road, has brought suit against the Pacific Company to enforce the payment of rental. The St. Louis, Lawrence & Denver was leased by the Missouri Pacific in 1872 for 30 years, at an annual rental which was to be equal to the interest on $1,000,000 first-mortgage bonds. The rental was assigned and made payable to the trustees. Subsequently the lease was cancelled, it is alleged, without the knowledge or consent of the trustee.

Some time since some of the bondholders brought suit to enforce the guarantee put upon the bonds by the Missouri Pacific, but the case was recently decided against them.

The directors of the Atlantic & Pacific Company, lessee of this road, proposed to call a meeting of Missouri Pacific stockholders this week for consultation as to the dividend which was payable Oct. 20. It is said that this dividend will not be paid, the money which the lessee intended to use for that purpose having been taken up in paying call loans in New York. The dividend is part of the rental of the leased road.

Chesapeake & Ohio.

In the foreclosure suits recently begun by some of the first-mortgage bondholders, Judge Bond, of the United States Circuit Court at Richmond, Va., has appointed Mr. Henry Tyson, of Baltimore, Receiver, and that gentleman has filed the necessary bonds and taken formal possession of the road. Mr. Tyson is well known as having been for a long time connected with the Baltimore & Ohio road. He was also for several years President of the Baltimore City Railroad Company and was Fourth Vice-President of the Erie under the Watson administration. He is a gentleman of character and ability.

The parties who begun the suit claim that the action taken was necessary to secure the interests of the first-mortgage bondholders and also to protect the road against vexatious suits and seizure by the floating debt creditors. On the other hand it is alleged that they represent only a small minority; that such action was entirely unnecessary; that a large majority of the bondholders were opposed to it, and that there was not sufficient notice given to the other party.

Messrs. Fisk & Hatch, financial agents of the company, stated, Oct. 13, that the opposition to the present movement for foreclosure was very strong. A petition to have the order appointing a receiver rescinded had been circulated among bondholders in New York, and had received the signatures of parties representing $23,000,000 of the company's debt.

Louisville, Cincinnati & Lexington.

Receiver Gill reports to the Court of Chancery as follows, for September:

Balance on hand Sept. 1.....	$231,346 18
Receipts from all sources.....	133,999 90
Total.....	$365,346 08
Paid on pay-rolls and vouchers.....	80,640 06
Balance on hand Oct. 1.....	$284,706 02

The expenditures for the month were $53,359.84 in excess of the receipts.

Little Rock & Fort Smith.

The suit to set aside the foreclosure and sale of this road and its transfer to the present company is to be tried in the United States Circuit Court at Little Rock, Ark., during the present term.

International Association of Railroad Conductors.

The eighth annual convention of this association will be held at the Grand Central Hotel in New York, beginning on Wednesday, Oct. 27. All conductors, whether members of the association or not, are invited to be present.

Meetings.

The following companies will hold their annual meetings at the times and places given:

Indianapolis, Cincinnati & Lafayette, at the office of the company in Indianapolis, Ind., Nov. 1, at 11 a. m.

Hannibal & St. Joseph, at the office of the company in Hannibal, Mo., Nov. 1, at 10 a. m. Three directors are to be chosen, to serve three years. Transfer books are closed until Nov. 5.

New York, Providence & Boston, at the office of the company in Providence, R. I., Oct. 27, at 10 a. m.

Erie.

Arrangements have been made for a new through passenger line to Chicago by way of this road and the Atlantic & Great Western to Cleveland, thence by the Cleveland, Columbus, Cincinnati & Indianapolis to Shelby Junction, and thence to Chicago by the Baltimore & Ohio. This action is taken in consequence of the evident determination of the Vanderbilt interest to shut out the Erie from its present connection with Chicago by the Michigan Central, or by the Canada Southern. It is said that Pullman cars will begin to run through by the new route about Nov. 1. The distances from New York by this new line are as follows:

	Miles.
New York to Salamanca, Erie.....	413
Salamanca to Cleveland, Atlantic & Great Western	213
Cleveland to Shelby, C., C., C. & I.....	67
Shelby to Chicago, Baltimore & Ohio	285
New York to Chicago	978

Which is 37 miles more than the distance from New York to Chicago by the New York Central, Great Western and Michigan Central, and one mile less than that by the New York Central and Lake Shore. The distance from New York to Buffalo by the Erie is only nine miles more than that to Salamanca, so that the Erie would carry traffic about the same distance by either line. Through Pullman cars will begin running Nov. 1.

On petition of Receiver Jewett, the New York Supreme Court has made an order allowing him to take the action set forth in the petition and to make the necessary payments. The petition set forth that the committee representing the English stock and boldholders, who are a large majority of the whole, had resolved, after consultation with the Receiver, that he should give them his views as to a plan of reorganization; that bondholders whose interest is in arrears should have a voice as to the expenditure of net earnings, which might properly be expressed through a representative committee; that such committee ought to have an office in London, the expense of which should be paid by the Receiver; that bondholders should be allowed to vote, and that all speculative combinations should be discouraged; that the law should be amended so as to permit the election of some non-resident directors as representatives of the foreign security holders; that the receivership should be terminated as soon as possible, by negotiation, or by foreclosure, if deemed necessary to relieve the road from unjust contracts, and that Mr. Morris, counsel for the English committee, should be associated with the counsel for the company and regarded as one of them.

The Southern Railroad Agreement.

A combination has been formed in favor of a new pooling agreement, to which a number of companies have already given their adhesion, and a general meeting of managers has been called which was to be held in Atlanta, Ga., Oct. 13. In case the movement is successful and a pooling agreement is made, of which there appears to be little doubt, it is proposed to offer Mr. Albert Fink the position of General Agent or Manager of the Southern Railroad Association. He will have to attend to the details of the agreement and to see that it is properly carried out by the companies who may be parties to it. Mr. Fink was to attend the meeting, although he has not signified his acceptance of the proposed position.

Toledo, Wabash & Western.

At the annual meeting in Toledo, Oct. 6, President and Receiver Cox presided and submitted a statement of the condition of the company. Resolutions were passed requesting the directors to procure delay in the foreclosure proceedings until further consultation could be made between the stock and bondholders, which was passed without opposition. The meeting was harmonious, and the election passed off quietly.

St. Louis, Bloomfield & Louisville.

This road, formerly known as the Bedford, Springville, Owensboro & Bloomfield, is now completed and in operation from the Indianapolis & Vincennes at Switz City, Ind., east to Bloomfield, six miles. Work is in progress on the line to the crossing of the Louisville, New Albany & Chicago at Bedford, 30 miles further. It is of three-feet gauge.

Evansville & Newburg.

This company has been reorganized, all difficulties settled, and arrangements are being made to begin work at once. The road, which is to be of three-feet gauge and about ten miles long, will run from Evansville, Ind., eastward to Newburg.

Indianapolis, Bloomington & Western.

An adjourned meeting of the first-mortgage Extension bondholders was to be held at No. 21 Nassau street, New York, Oct. 15, at noon, to hear the report of the committee.

Wisconsin Central.

Agents of this company are now passing over the line between Portage, Wis., and Stevens Point, looking after the right of way and submitting propositions for aid to the people along the line. They state that the road is to be built at once.

Columbus, Chicago & Indiana Central.

A new suit has been begun in the New York Supreme Court by James A. Roosevelt and Wm. R. Fosdick, as trustees under the mortgages and assignees of all the rights and claims of the company, against the Pennsylvania Railroad Company as guarantor of the lease to the Pittsburgh, Cincinnati & St. Louis. The complaint is very long, and recites the lease and amended lease, as also the legal proceedings which have been taken in the courts of Ohio, Indiana and Illinois, and ends by demanding the payment of $661,035.69 with interest thereon from specified dates, being the amount of interest due and unpaid on the first consolidated mortgage bonds and prior sectional mortgages, from February, 1875, to August, 1875. This is a direct action against the Pennsylvania Railroad Company for the fulfillment of its guarantee under the amended lease.

In the suit brought by C. W. Hassler in the United States Circuit Court on behalf of the stockholders to set aside the amended lease and enforce the original contract, an amended complaint has been filed.

Montclair.

Mr. A. S. Hewitt, the trustee who bought in the road for account of the bondholders at the foreclosure sale, having announced his willingness to turn it over as soon as he was repaid the loss which he had incurred while working the road, the bondholders have agreed to pay the amount, about $10,000, and also to assume all outstanding bills. Mr. Jacob F. Randolph, President of the provisional organization, now has possession, and is authorized to make the necessary contracts for the rebuilding of the bridge over the Passaic at Woodside, N. J., which was destroyed by fire some time since. The temporary bridge is now being put up and will be done in a few days, and the permanent bridge is under contract. It will have an iron draw and stone piers. A gravel train will be put to work clearing out and ditching the deep cut at Kearney, a work much needed, and another will be employed in ballasting the upper part of the road. Some new rails will be laid and two engines and several passenger cars have been ordered, to be delivered by the close of the year. It is proposed to issue at present only $200,000 out of the $700,000 new bonds authorized to repair and complete the road. A meeting to permanently organize the new company and select a name will be held Oct. 19.

Chicago, Clinton & Western.

A dispatch from Davenport, Ia., says that a deed was filed in the Recorder's office there Oct. 9, conveying all the property to C. D. Close, of Johnson County, under a special execution issued by the Circuit Court in favor of B. F. Aiken. The whole amount of the judgment is less than $3,000.

Rockford, Rock Island & St. Louis.

The Receiver reports for August as follows:

Cash on hand Aug. 1.....		$19,142 53
Received from agents.....		49,585 28
Mileage, express and sundries.....		3,165 72
Total.....		$71,893 53
General supplies, freight, etc.....	$18,257 12	
Pay-rolls.....	27,108 25	
		45,365 37
Balance on hand Sept. 1.....		$26,528 16

The receipts for the month were at the rate of $181 per mile, and the expenditures were 86 per cent. of receipts.

North Pennsylvania.

A branch is to be built from the Delaware River Branch of this road at Lower Wakefield, Pa., to Newtown in Bucks County. The grading will be put under contract this fall, with the expectation of having the branch completed early next summer.

Eastern.

The promised statement of the condition of the company has been made public. The entire indebtedness of the corporation Sept. 1, 1875, was as follows:

Bonds.....	$5,691,448 00
Ten year notes, including $2,000,000 sinking fund.....	5,676,500 00
Notes maturing within eight months.....	1,677,900 00
" " three years.....	286,000 00
Portland, Saco & Portsmouth notes endorsed by Eastern	250,000 00
Debts not bearing interest.....	344,400 67
Total.....	$13,926,248 67
Liability on purchase of mill pond lands in Charlestown, maturing in 1877.....	724,125 00
Total.....	$14,650,373 67

There is also a contingent liability as endorser of Portsmouth, Great Falls & Conway bonds to the amount of $514,000, maturing 1892.

Against this debt, besides road, equipment and other property for the use of the road, there are the following specific items of property not needed for the use of the road:

Lands in Charlestown.....	$1,300,200 00
" East Boston, Lynn and other places.....	1,211,551 44
Balances due from other roads, agents, etc.....	460,976 72
Total.....	$2,972,728 16
Supplies on hand.....	316,529 08
Cash on hand.....	130,395 66
Total.....	$3,419,652 90

These items do not include $551,300 stock and $486,000 bonds of the Portsmouth, Great Falls & Conway Company. It is

believed that before long that road will become self-sustaining and ample security for its debt, and that its stock will have an appreciable value. Without counting these securities, the credit items reduce the company's debt to $11,230,720.77.

The apparent increase of debt since the last annual report is accounted for by the omission of these securities; by the diminished valuation of property; by payments made upon old contracts for steel rails and additional lands in Charleston, and by discount on sales of securities.

The directors believe that these statements are as unfavorable as the figures will warrant, but notwithstanding their adverse appearance and the generally unfavorable results of the present year, they believe that the business of the road must continue to grow as heretofore with the steady growth of population along the line and the great development of the business interests of Maine and New Hampshire.

Fitchburg.

This company has finally adopted a line for the proposed straightening of the Vermont & Massachusetts Division at Ashburnham, Mass. The new line will leave the present one about 1½ miles below Ashburnham Junction and run into Gardner by an easy curve, saving some distance and avoiding the present reversing of trains at the junction. The location has been completed, land damages settled and the contract awarded to Edmund Rice, of Newton, who will begin work at once.

New York, New Haven & Hartford.

The Treasurer has recently paid the $1,000,000 bonds of 1855, which matured this year, and the company has now no bonded debt, and no floating debt beyond the ordinary current balances. It is one of the very few companies in the United States whose property is entirely represented by stock—the only large one.

New York & Canada.

The track from Whitehall, N. Y., to Plattsburg, is all down, except six miles between Westport and Whalonsburg, and the men are at work on that gap, which is to be finished by Oct. 20, in time for the directors' train to pass over. Three gravel trains are at work ballasting the track, which will probably be ready for regular trains sooner than was expected.

Providence & Springfield.

An effort is being made to secure the extension of this road from its present terminus at Pascoag, R. I., westward to Putnam, Conn., about 14 miles, passing through several manufacturing villages. The estimated cost is $450,000, of which Putnam has agreed to subscribe $100,000. At Putnam a connection will be made with the Norwich & Worcester and New York & New England roads.

New York, Housatonic & Northern.

Suit has been begun to foreclose a mortgage of $200,000 on this road and the appointment of a receiver is asked for. The action is in the New York Supreme Court. The only completed road owned by the company is a line four miles long, from Brookfield Junction, Conn., to Danbury, which is leased to the Housatonic Company.

Atlantic & Great Western.

In the Summit County (O.) Circuit Court the United States Rolling Stock Company has begun a new suit against this company to recover $985,934.02, of which $385,934.02 is for rent of rolling stock, $450,000 for damages to rolling stock, and the balance damages for breach of contract. This is in addition to the suit begun some months ago.

Pittsburgh, Virginia & Charleston.

The new passenger and freight depots at Fourth avenue and Try street, in Pittsburgh, have been completed, and trains began running into them last week. They are of sufficient size and conveniently arranged. The passenger depot will also be used by the local trains of the Pittsburgh, Cincinnati & St. Louis road.

Chicago, Danville & Vincennes.

The United States Circuit Court has authorized the Receiver to conclude a contract for the lease of the Chicago & Southern Railroad at a rental of $1,866.67, gold, per month, the lessee also to agree to run over the road daily two suburban passenger trains, to stop at such stations as the lessor may indicate. The Receiver was also authorized to make the improvements spoken of in his report at the Danville shops; to surrender to the Hinkley Locomotive Works five engines now in his possession, and to arrange with the Western Union Telegraph Company for the construction of a telegraph line from Bismarck to Coal Creek on the Indiana Division.

Plymouth, Kankakee & Pacific.

In the suit of Hanna and others against this company, the United States Circuit Court has appointed Phineas M. Kent Receiver of the property of this company, and has given him authority to recover from the present custodians any unsold bonds that may be in existence.

Rockford, Rock Island & St. Louis.

The United States Circuit Court has authorized the Receiver to buy such number of ties as may be needed for present use in repairs of the road.

Southern Maryland.

The Supreme Court of the District of Columbia has made an order dismissing the injunction heretofore granted, discharging the receiver and ordering him to return to the officers of the company the books and papers in his possession.

The property of the company in Maryland still remains in the hands of the receiver appointed in that State, who is not affected by this new order.

Peoria & Rock Island.

The Receiver, Mr. J. R. Hilliard, has filed a report covering the seven months ending with August 31. The net earnings of the road for that period have been $73,110.22, an increase of $39,386.90, or 116.8 per cent. over the previous year. Out of these net earnings the following payments have been made:

Back pay of employes	$19,790 70
On account of notes received on mortgage	23,592 14
G. W. Cable, interest on bonds	7,500 00
New water tank at Galva	1,197 36
New iron, ties and labor on same	16,803 80
Rebuilding cars	2,860 61
Legal services	1,238 48
Total	$72,983 09

Leaving a balance of $127.13. There still remains $26,407.86 due on the chattel mortgage, which can be cleared off in a few months.

Mr. Hilliard thinks the road well placed for traffic, having considerable cities at each end of the line, a good agricultural country along the road and productive coal mines tributary to it. The road, however, has been poorly and cheaply built, with 90-feet grades and sharp curves. The cuts and ditching were badly done, pine ties were used and now need to be replaced, the bridges are of poor material and need continual repairs. From Orion to Coal Valley the iron is badly worn, and from Coal Valley to Peoria it is old and needs to be replaced. About 1,200 tons of iron and 5,000 ties are needed at once. Depot grounds are needed both at Peoria & Rock Island. The equipment consists of 7 engines, 4 passenger, one smoking, 2 caboose, 48 box and 44 flat cars. This is entirely insufficient, and more has to be hired. He is now leasing 118 freight and 20 stock cars from the Western Car Company at $20 per month, two cabooses at the same rent, 46 box and ten stock cars at two cents per mile run. About 20 miles of right of way has never been paid for and 80 miles of fencing should be built.

The Court authorized the Receiver to make such improvements in track and bridges as are necessary; to buy the ties, piles and iron needed at once, and to buy one freight engine. He is also to examine a site for a depot at Peoria and report its location and cost.

Long Island.

There is talk of building a new branch to run from Waverley, N. Y., south by east to Patchogue, and thence easterly until it strikes the Sag Harbor Branch near Moriches or Speonk. The branch would be about 18 miles long, and from Patchogue to Moriches would be parallel to and five or six miles south of the main line.

Illinois Central.

The Land Department reports for September sales of 1,910.69 acres of land for $12,373.99. Cash collections on land contracts amounted to $21,291.51.

The Traffic Department reports earnings for September as follows:

	1875.	1874.	Decrease.	P.c.
In Illinois, 707 miles	$578,517 75	$587,588 83	$9,071 08	1.5
In Iowa, 402 miles	159,315 85	170,946 68	11,630 83	6.8
Total, 1,109 miles	$737,833 60	$758,535 51	$20,701 91	2 7

The earnings per mile in Illinois were $818, and in Iowa, $396, the average for the whole road being $665 per mile.

St. Croix & Penobscot.

This company has made arrangements to issue $100,000 new 6 per cent. bonds, the proceeds to be used to pay off the bonds issued by the city of Calais, Me., to the Lewy's Island Railroad Company, which were assumed when the present company was formed by the consolidation of the Calais & Baring and the Lewy's Island Companies. The Calais bonds fall due early in 1876.

New Castle & Franklin.

The surveys for the extension of this road to Meadville, Pa., and ultimately to Erie, are being pushed forward as fast as possible. One route partly run is almost an air-line from Sandy Lake to Meadville. Another route leaves the main trunk seven miles from Sandy Lake, at Clark's Mills, and runs via Sheakleyville and connects with the Atlantic & Great Western at Sutton's Corners, leaving Meadville to the east. Still another route is proposed, and upon its survey the engineers are now engaged. That is, by the way of Clark's Mills to Cochranton, and thence to Meadville.

Chippewa Valley & Red Cedar.

This company has asked the town of Eau Claire, Wis., for a subscription of $100,000 in aid of its projected road. Meetings are being held, and the proposition is to be submitted to the voters of the town.

Indianapolis & Springfield.

A contract has been agreed upon by the President and some New York parties, who undertake the entire construction and equipment of the road. It has still to be approved by the board.

Levis & Kennebec.

Trains will begin to run regularly from Levis, opposite Quebec, to Ste. Marie, P. Q., this month, a distance of 30 miles. A further extension of 15 miles to St. Joseph le Beauce is to be completed by December.

Western Maryland.

On behalf of certain parties, owners of $27,500 preferred second-mortgage bonds of this company, a bill in foreclosure has been filed in the Baltimore Circuit Court and the usual injunction and the appointment of a receiver asked for. The bill sets forth that the interest on these bonds has been unpaid for over three years; that the trustees have been asked to act, but have refused to do so; that some holders of bonds have been paid and others refused, and that the company is hopelessly insolvent. It also asks that the trustees may be removed and others appointed who will act in behalf of the bondholders.

Lehigh & Eastern.

The Port Jervis (N. Y.) *Gazette* says: "It is currently stated that the officers of the Lehigh & Eastern Railway having met with such ill-success in getting the right of way from Stroudsburg, Pa., to this place, now contemplate surveying a route from Stroudsburg through the Delaware Water Gap to Portland, connecting at that point with the South Mountain road, the right of way on that road having been donated from the Delaware River to Middletown."

Winona & Southwestern.

A new survey is to be made at once from Winona, Minn., by way of Pleasant Valley and Houston to the Iowa State line, with a view of connecting there with a projected narrow-gauge line through Liscomb to Des Moines, Ia.

Quincy, Alton & St. Louis.

In 1871 the city of Louisiana, Mo., issued $50,000 of bonds to this company, on condition that the terminus be located in that city and certain improvements made. The company did not carry out its part of the agreement, and the city refused to pay interest on the bonds. Recently some of the holders brought suit to recover interest; the city put in an answer showing that the conditions have not been fulfilled. The answer was demurred to, but the United States Circuit Court has just overruled the demurrer, giving thereby a preliminary decision which is decidedly in favor of the city.

Rome, Watertown & Ogdensburg.

The track of the Lake Ontario Division is now laid to Kendall Corners, N. Y., 23 miles west from Charlotte and six miles beyond the point last noted. The ballasting is nearly completed, and a freight train will probably soon be running over that section.

Burlington & Missouri River in Nebraska.

The office of the Assistant Treasurer of this company has been removed from Plattsmouth to Omaha, Neb. Communications for Mr. J. G. Taylor, Acting Assistant Treasurer, should be addressed accordingly.

Canada Southern.

It is said that this company has resolved to extend the Chicago & Canada Southern from the present terminus at Fayette, O., west by south to Butler, Ind., where it will connect with the Lake Shore and the Detroit, Eel River & Illinois roads. The distance is 38 miles, and most of the grading and bridging is done.

Buffalo & Jamestown.

The completion of this road was duly celebrated by an excursion Oct. 9. Regular trains are now running over the whole length of the road.

New Jersey Midland.

A largely attended meeting of the bondholders was held in New York Oct. 7, when the two plans of reorganization, which have been already described, were submitted. The Receiver, being called on, said that there would be needed at once $40,000 to put the road in order; $25,000 for general repairs; $184,000 to pay for equipment now on the road or urgently needed; $61,500 for right of way and land mortgages; $40,000 to pay arrears of rent of Middletown, Unionville & Water Gap road; $10,000 for interest on mortgage on the Weehawken property; $25,000 to pay taxes, making $385,500 in all.

Ex-Gov. R. M. Price argued that the road as it now stands is worthless, and that the only thing that can make it valuable is a direct connection with the Pennsylvania coal fields; this could be secured through the South Mountain & Boston road. The proposition of that company to buy the Midland by assuming its debts, which has been heretofore noted, was then submitted. There was a long and somewhat heated discussion, and, without taking any action, the meeting adjourned to Oct. 21.

Atchison Bridge.

A meeting of managers of the railroads centering in Atchison, Kan., was held in that city Oct. 8, to perfect arrangements for running trains over the new bridge across the Missouri. The question of building a union depot in Atchison was also considered, and a committee appointed to prepare plans.

Southern Minnesota.

The offices of the Auditor, the Treasurer and the Land Commissioner were transferred from Wells, Minn., to La Crosse, Wis., Oct. 8. All the general offices are now established at La Crosse.

Toledo, Peoria & Warsaw.

The Receiver reports to the United States Circuit Court for August and September as follows:

Balance on hand Aug. 1	$66,402.44
Receipts for August	146,483.53
" " September	136,541.79
Total	$349,427.76
Disbursements for August	$127,013.20
" " September	172,518.37
	299,531.57
Balance on hand Oct. 1	$49,896.19

The receipts for the two months were from the following sources:

Freight	$170,415.07
Passengers	80,747.92
Other sources	31,862.33
Total	$283,025.32

The August receipts exceeded the disbursements by $19,470.33; in September the disbursements were in excess of the receipts by $35,976.56, making an excess of payments over receipts of $16,506.25 for the two months. As compared with the corresponding months of 1874 the receipts show an increase of $84,969, or 42.9 per cent.

Hoosac Tunnel Line.

Manager Prescott reports the earnings of the tunnel and State road for August at $5,393, of which $2,479 was from passengers and $2,777 from freight. The expenses were for wages $3,256, repairs $411, sundries $170, total $3,837. The net earnings were $1,556.

The cost of the work on the Troy & Greenfield road during August was $59,131.49 and on the new location west of the tunnel, $26,562.15. Fair progress was made in the tunnel during the month, about 300 feet of arching having been completed. The total expenditure on new work was $125,728.44. The progress of the work between Shelburne Falls and Bardwell's Ferry was not satisfactory, owing to the failure of the sub-contractors. The iron bridges over the highways and over Pelham Brook, near Zoar, have been completed, and that over Clossen River at Buckland is nearly done.

Massachusetts Central.

There are reports that new parties have acquired the control of this company and that work will be actively resumed in the spring. There are also reports that the property will pass into the hands of another company, which will complete the road. In view of a possible change of ownership, many land holders along the line are applying to the courts to order the company to give bonds to secure payment for the right of way and all land damages.

There is also talk of an extension from Amherst by way of Holyoke to Westfield, then up Little River to Otis and East Lee, and thence westward, using the partly graded road-bed of the Lee & Hudson road.

ANNUAL REPORTS.

Indianapolis, Cincinnati & Lafayette.

This company works a line from Cincinnati, O., northwest, by way of Indianapolis, to Lafayette, Ind., 179 miles. Of this, 20¾ miles, from Cincinnati to the Indiana State line, are owned by the Cincinnati & Indiana Company, nearly all of whose stock, however, is held by the Indianapolis, Cincinnati & Lafayette, and the two companies are practically the same. There are 1¼ miles of second track and 39⅞ miles of sidings. For a part of the year the company has worked the Cincinnati & Martinsville road, from Martinsville, Ind., to Fairland, 39 miles, and the Whitewater Valley road, from Valley Junction, Ind., to Hagerstown, 70 miles, but the accounts of these roads are not included.

At the close of the last fiscal year, June 30, 1875, the property was represented as follows:

Capital stock	$5,635,497 50
Cincinnati & Indiana stock, $500,000, less $481,800, owned by I., C. & L. Company	18,200 00
Total stock ($31,585 per mile)	$5,653,697 50
Funded debt ($59,558 per mile)	10,660,905 79
Total ($91,143 per mile)	$16,314,603 29

Of the funded debt outstanding $1,439,200 were funded-debt bonds issued for advances made by stockholders when the company was reorganized in 1873. Interest on these bonds was to begin July 1, 1875, but concerning them the report says: "Finding in April last that the earnings of the road were not increasing so fast as was expected in 1873, when the funded-debt bonds were issued to the stockholders in settlement of their advances, and that the interest due Jan. 1, 1876, could not be paid, your directors thought it best to have an agreement prepared for changing the same into preferred stock. It is vital to the interests of all, whether stockholders or owners of funded-debt bonds, that this agreement should be signed by all before Oct. 15 next. It is evident that the road cannot earn $100,000 in addition to last year, and unless the bonds are changed there will be a default. Your directors have signed for their bonds and are using every exertion to induce all to come in. When this is done, we can take steps to provide for the million of Cincinnati & Indiana bonds due Jan. 1, 1877."

Bills payable and call loans amount to $503,339.24; accrued interest, $113,967.50; accounts due and personal claims, $213,613.63, making a floating debt of $830,920.37. The supplies on hand are valued at $90,566.42. The construction account has been increased by $9,249, mainly for excess of cost of steel over iron rails and for new sidings. The equipment account has been increased by the cost of a new locomotive.

The equipment consists of 17 passenger and 40 freight engines; 4 parlor, 35 passenger, 3 smoking, 2 postal and 11 baggage cars; 727 box, 49 stock, 66 coal, 289 flat and 25 caboose cars; 2 tool and 2 camp cars. The equipment has been maintained in good order and improved.

The mileage of locomotives during the year was: Passenger, 490,630 miles; freight, 502,382; switching, 295,385; construc-

tion, 45,638; total, 1,334,035 miles, at an average cost of 19.58 cents per mile. The work done was as follows:

	1874–75.	1873–74.	Inc. or Dec.	P. c.
Passengers carried	616,934	565,100	Inc.. 51,834	9.2
Passenger mileage	24,085,103	20,569,640	Inc.. 3,515,463	17.1
Tons freight moved east	306,000	366,679	Dec.. 60,679	16.5
" " " west	250,480	257,993	Dec.. 7,513	2.8
" " " total	556,480	624,672	Dec.. 68,192	10.9
Tonnage mileage	52,677,120	62,698,897	Dec..10,021,777	16.0
Earnings per passenger train mile	$1 54	$1 49	Inc.. $0 05	3.4
Earnings per freight train mile	1 95	1 84	Inc.. 0 11	6.0
Expenses per train mile, all trains	0 82	0 84	Dec.. 0 02	2.4
Average receipt per passenger per mile	cts. 2.72	cts. 3.02	Dec.. ct. 0.30	9.9
Average receipt per ton per mile	cts. 1.866	cts. 1.77	Inc.. ct. 0.096	5.4

The earnings for the year were as follows:

	1874–75.	1873–74.	Inc. or Dec.	P. c.
From passengers	$654,628 27	$620,981 29	Inc.. $33,646 98	5.4
Freight	982,952 83	1,110,602 46	Dec.. 127,649 63	11.5
Express, mail, rents, etc.	129,650 31	127,891 12	Inc.. 1,759 19	1.4
Total earn'gs.	$1,767,231 41	$1,859,474 87	Dec.. $93,243 46	5.0
Working exp'n's.	1,056,312 43	1,198,010 78	Dec.. 141,698 35	11.8
Taxes	39,938 66	30,322 61	Inc.. 9,616 05	31.7
Total exp'n's.	$1,096,251 09	$1,228,333 39	Dec.. $132,082 30	10.8
Net earn'gs..	$670,980 32	$631,141 48	Inc.. $39,838 84	6.3
Gross earnings per mile	9,872 80	10,388 13	Dec.. 515 33	5.0
Net earnings per mile	3,748 49	3,525 93	Inc.. 222 56	6.3
Per cent. of expenses	59.77	64.43	Dec.. 4.66	7.2
Per cent. of exp'n's and t'x's.	62.03	66.06	Dec.. 4.03	6.1

A summary of the profit and loss account is as follows:

Net earnings of the year		$670,980 32
Debtor balance from previous year	$9,500 51	
Interest on floating debt	33,542 60	
Bond interest and Cin. & Ind. dividend	650,699 50	
		693,742 61
Debtor balance to next year		$22,762 29

The actual deficiency for the year being $13,261.78.

The reduction in expenses was owing to the fall in labor and materials, and also to the fact that most of the decrease in freight business was of low-rate freight. That decrease was largely in Continental Line freight, owing to the opening of the Chicago Division of the Baltimore & Ohio.

Improvements during the year include the rebuilding of six bridges and three water stations; 20 miles of new fence; 85,300 new ties; 3,648 feet of new sidings; 5¼ miles new steel rails laid, making 27¼ miles of steel now on the road; 24 miles of iron rails renewed. The report says:

"We have kept our rates good and maintained harmonious relations with all our competing lines, with but little exception, notwithstanding the demoralization in rates that has prevailed all around us.

"That our earnings have fallen off is due largely to the competition of the trunk lines, which by their extreme low rates of freight and passage have diverted business.

"In March last we commenced to operate the Cincinnati & Martinsville Railroad, under a verbal arrangement by which so long as it continued we should operate the road and pay over its net earnings to the Cincinnati & Martinsville Company, charging nothing for superintendence. This contract can be terminated at the pleasure of either company. So far it has worked satisfactorily.

"In March last we entered into a contract for operating the White Water Valley Railroad.

"The stockholders and bondholders of this company are in litigation, and this contract is liable to be terminated by such litigation. So far it has cost us nothing, neither have we received much profit."

Louisville & Nashville.

Some weeks ago there was published in the *Railroad Gazette* a summary prepared from the completed report for the year ending June 30, 1874; we are now able to present a similar summary from advance sheets of the report for the year ending June 30, 1875. The road worked was the same as for the previous year, 604.88 miles owned and 132.80 leased, as follows:

Owned:	Miles.
Main Stem, Louisville south by east to Nashville	185.00
Bardstown Branch, Junction to Bardstown, Ky	17.30
Knoxville Branch, Lebanon Junction, Ky., to Livingston	110.32
Richmond Branch, Richmond Junction, Ky., to Richmond	33.46
Memphis Line, Bowling Green, Ky., southwest to Memphis, Tenn	258.80
Total owned	604.88
Leased:	
Glasgow Railroad, Junction to Glasgow, Ky	10.50
Nashville & Decatur Railroad, Nashville, Tenn., south to Decatur, Ala	122.30
	132.80
Total worked	737.68

The company owns a majority of the stock of the South & North Alabama Railroad, from Decatur south to Montgomery, 183 miles. It has made large advances to this road both for construction and for the payment of interest on its bonds.

The total cost of the road owned up to the close of the year was $23,798,970.42, or $39,345 per mile. The company has large investments outside of the road owned, as appears from the general account, as follows:

Assets:	
Cost of road to June 30, 1875	$23,798,970 42
Due from Transportation Department	233,617 00
Ten-year mortgage gold bonds	1,900,000 00
Sundry railroad bonds	293,188 27
Sundry railroad stock	1,088,461 45
Louisville Bridge Company stock	310,200 00
Pullman Southern Car Company stock	84,000 00
Sundry railroads and persons	244,080 28
Real estate, timber and quarry l nds	923,257 88
South & North Alabama	713,282 28
Nashville & Decatur	562,083 36
Shop and fuel stock	739,298 00
Cash, Louisville and New York	174,120 03
Total	$31,064,558 97
Liabilities:	
Capital stock ($14,860 per mile)	$8,988,301 13
6 per cent. bonds	$3,963,810
7 per cent. bonds	13,241,000
10 per cent bonds	2,000
($28,447 per mile)	17,206,810 00
Bills payable	1,627,139 13
Accounts payable	876,722 24
Interest and dividends due	219,347 04
Profit and loss	2,446,239 43
Total	$31,064,558 97

Of the bonds outstanding $849,000 are Louisville city bonds, interest on which the company pays, but they are not a lien on the road. During the year $117,000 consolidated bonds were issued and $177,190 bonds of old issues redeemed or paid to sinking fund; also $4,000,000 ten-year gold bonds were issued, but $1,500,000 were subsequently canceled and an agreement made to cancel $500,000 more, leaving only $2,000,000 outstanding.

LOCOMOTIVE RETURNS, JUNE, 1875.

Master Mechanics of all American railroads are invited to send us their monthly reports for this table.

Name of Road.	Number of mil s op- erated	Number of Locomo- tives in service	Mileage Total	Mileage Average per Engine	No. Miles run to Ton of Coal	No. Miles run to Cord of Wood	No. Miles run to P nt of O l	Average No. of freight car's hauled	Cost per Mile in Cents for Repairs	Fuel	Stores	Miscellaneous	Engine'rs, firemen and wipers	Total	Av. c'st of Coa, per ton or	Wood, per cord
															$	$
Allegheny Valley	259	64	144,139	2,251	39.60	....	19.80	.....	4.90	3.70	0.89	....	7 21	16.70	1.30	2.70
Atlantic & Great West'n (First & Second Div)	228	82	229,927	2,804	54.30	.....	18.56	.....	3.81	5.12	0.52	0.63	6.25	16.33	2.27	3.28
" " (Third & Fourth Div.	197	48	105.057	2.189	54.30	.....	21.42	.....	5.08	5.12	0.40	0.79	5 94	17.33	2.27	3.28
" " (Mahoning Division)	121	58	100,665	1,736	54.30	.....	19.50	.....	3.74	5.12	0.47	0.71	5 96	16.00	2.27	3.28
Camden & Atlantic	67	12	20.059	1,672	58.10	....	15.00	.....	6 36	9.37	1.41	.....	5 70	22.84	5.37	2.60
Central Pacific (Western Division)	173.4	41	116,225	2,835	42.99	....	19 96	.....	8.30	19.19	0.73	0 65	8.72	37 59	8.25	5.50
" " (Sacramento Division	119.5	39	107.436	2.755	.....	29.03	14.93	.....	5.92	18.95	0.95	0.68	8.33	34 83	.....	5 50
" " (Truckee Division)	204.5	27	75,645	2.802	34.38	27.66	15.49	.....	4.74	22 18	0.84	0 73	8.46	36.95	8.25	5.50
" " (Humboldt Division)	236.6	23	72.425	3.149	35.91	....	17.41	.....	5 78	22.97	0.74	0 49	7.39	37.37	8.25	5.50
" " (Salt Lake Division)	182.8	26	76 785	2,953	33.75	....	15.41	.....	13.98	24.43	0.78	0.51	7.68	47.38	8.25	5.50
" " Oregon Division)	151.42	7	20 050	2,864	.....	40.10	26.99	.....	3 50	13.72	0 60	0.88	7.88	26.58	.....	5.50
" " (Vi alia Division)	231.8	17	35,134	2.067	52.91	45.35	17.58	.....	6.29	15.41	0.81	0.84	8 00	31.34	8.25	5.50
Cleve., Col., Cin. & Ind. (Columbus Div.)	138	59	131,429	2,228	51.08	86 21	34.41	.....	3.36	4.67	0.56	.....	6.99	15.58	2.14	3.50
" " " (Indianapolis Div.)	207	63	151,150	2,399	52.65	56.20	25.74	.....	4.56	3.96	0 58	.....	7.05	16.15	1.75	3.50
" " " (Cincinnati Div.)	130	28	73,647	2,595	41.14	....	26.49	.....	2.30	4.67	0.51	.....	6 47	13.95	1.75	3.50
Cleveland & Pittsburgh*	199	77	168 278	2,185	54.69	....	18.53	16 5	3.45	2.92	0.73	2.03	6.95	16.08	1.35	1.60
Del., Lacka. & West. (Bloomsburg Div.)	80	25	57,230	2,289	.....	....	34.38	.....	3.71	....	0.66	....	6.16	10.53	.....	.....
Flint & Pere Marquette	284	..	98,511	.....	.....	58.90	23.68	.....	3.62	7.64	0.51	.....	5.82	17.59	.....	4.50
Hannibal & St. Joseph	294	56	107,741	1,924	45.70	....	22.00	.....	6.70	5 80	0.40	.....	6 80	19.70	2.50	3 60
Illinois Central (Chicago Div.)†	252.5	59	142 952	2,423	41.17	....	15.75	19.9	10.40	4 70	0.38	.....	6 67	22.14	1.80	4 25
" " (South Div.)†	230.75	53	72,251	2.189	43.90	....	14.80	15.11	10.68	4.43	0 38	.....	6.64	22.13	1.80	4.25
" " (North Div.)†	225	44	96.011	2.182	36.07	....	14.71	18.18	10.17	5.38	0.35	.....	6.70	22.60	1.80	4.25
" " (Iowa Div.)†	401	43	113 095	2,630	42.41	....	18.45	12.95	3.97	5.68	0.30	.....	6.44	16.39	2.30	4 75
Jeffersonville, Madison & Indianapolis	225	42	87.269	2,078	51.40	32.69	16.99	.....	4.36	6 15	0 47	2.56	6.97	20.51	2.85	3 00
Kansas Pacific, Main Line‡	673	86	135 940	1,581	35.35	....	12 69	.....	4.58	9.31	0.53	.....	7.30	21.72	3.25	3.11
" including all branches‡	895	94	155.516	1,654	35.94	....	13.07	.....	4.08	9.34	0 52	.....	7 40	21.34	3.32	3.17
Kansas City, St. Jo & Council Bluffs‖	334	25	63.749	2,550	55.30	....	25.20	18.90	6.30	5.90	0 50	.....	7.50	20.20	3.00	3.50
Lake Shore & Mich. South. (Buffalo Div.)¶	.....	93	125,312	1,347	46.86	41.96	14 79	.....	6.45	7.47	.....	.....	6.68	20.60	3 50	3.50
" " (Erie Div.)¶	.....	114	191,075	1,676	58.68	40.00	20.90	.....	7.22	6.66	.....	.....	6.67	20.55	3.50	4.00
" " (Toledo Div.)¶	.....	79	138,036	1,747	49 85	47.65	12.95	.....	4.00	8.09	.....	.....	6.23	18.32	4.00	4.00
" " (Mich.South.Div.)¶	...	209	405,588	1,942	47 79	60.27	19.79	.....	4.29	8.00	.....	.....	7.01	19 30	4 5	3.50
Leavenworth, Lawrence & Galveston	203.7	18	19,886	1,105	70.50	....	32.50	.....	6.70	5.43	0.32	.....	5.73	18.18	3.63	3.50
Marquette, Houghton & Ontonagon	88	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northern Central (Elmira & Canandaigua Div.)	.....	44	111.502	2,534	35.44	....	20.00	.....	4.56	6.52	0.65	.....	6.26	15.99	0.8	2.24
Pennsylvania (New York Division	119.9	112	265,017	2.366	39.09	....	11.42	.....	15.70	14.60	1.30	.....	.....	31 60	0.20	7 04
" (Amboy Division)	154.2	49	80,058	1,634	57.51	....	16.34	.....	10.70	9.90	0 90	.....	.....	21.50	0.20	7 08
" (Belvidere Division	102.5	30	51,948	1,732	56.38	....	12.76	.....	5.30	10.10	1.38	.....	.....	14.70	0.20	7.08
" (West Jersey Railroad)	128	18	37.098	2,061	48.11	40.16	18.87	.....	3.00	9.00	0.70	.....	.....	12.70	0.17	3.52
" (Philadelphia Division)	204.3	173	486,444	2,812	34.83	....	14.84	.....	4 60	4.40	0.80	.....	.....	9.80	0.05	3.52
" (Middle Division)	131.6	126	305,980	2.428	33.95	....	22.62	.....	3.80	4 40	0.60	.....	.....	8.80	0.5	3.52
" (Pittsburgh Division, East End)	.....	73	144.19	1,975	25.02	....	12.40	.....	8.00	3,90	1.00	.....	.....	14.90	0.05	3.52
" (Pittsburgh Division, West End)	.....	114	268 568	2,356	36.95	....	14 58	.....	10 5	4.00	0.80	.....	.....	15.30	0.05	3.52
" (Tyrone Division)	106.8	32	60,401	1,888	25.64	....	4.04	.....	5 50	5,80	0.60	.....	.....	11.90	0.05	3.52
" (West Pennsylvania Division)	103.6	25	51,135	2.045	43.72	....	35.46	.....	4.70	3,50	0.40	.....	.....	8 60	0.05	3.52
" (Lewistown Division)	12.5	2	3,832	1,910	66.63	....	25 51	.....	0.80	2.50	0.50	.....	.....	3 80	0.05	3.58
" (Bedford Division)	56.5	5	12,291	2,458	37.20	....	28.90	.....	1.90	4.20	0.40	.....	.....	6.50	0.05	3.53
Philadelphia, Wil ington & Baltimore	.....	73	156,357	2,142	66.75	....	10 67	.....	6 00	8.20	1.20	...	7.00	22.40	4.75	5.00
Pitts., Fort Wayne & Chicago (Eastern Div.)*	468.9	183	431,433	2,397	44.00	....	16.87	14.80	3.54	3.37	0 86	1.57	6.57	15.91	1.48	1.48
" " " (Western Div.)*	281	108	277,200	2,567	49.50	....	17.05	22 20	3 60	3.60	0.50	2 50	6.40	16.60	1 80	1 80
Pitts., Cin. & St. Louis (Little Miami Div.)	197	39	99.354	2,548	48.75	....	12.36	.....	4.74	3.38	0 92	2.18	6.76	17.98	1.51	2.75
" " (Pittsb. & Col. Div.)	224	97	236 664	2,440	33.40	....	15.60	.....	6 27	5.46	0.88	2.52	6.61	21.74	1.70	4 50
South Carolina	242	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stockton & Copperopolis	49	3	3,704	1 235	.....	67.35	16.99	.....	1.26	8.17	0 91	1 56	10.53	22.45	.....	5.50
St. Louis, I. M. & South (Arkansas Div.)	305	25	65,475	2 619	.....	45.70	18.00	.....	2.87	5.26	0.55	.....	7.28	15.96	.....	2.49
Terre Haute & Indianapolis (Ind anap. Div.)	112.63	....	61,010	.....	31.70	....	17.00	.....	8 69	5.98	0.96	.....	8 53	24.16	1.80	....
" " (Vandalia Div.)	158.3	....	75,414	.....	39 60	....	20.40	.....	6.48	3.07	1.05	.....	8.14	18.74	1.46	....
Six months ending June 30:																
Cleve., Col., Cin. & Ind. (Columbus Div.)	138	61	802,151	13,150	44 27	70 11	38.02	.....	3.33	5.64	0.55	.....	6.83	16.35	2.28	3.50
" " " (Indianapolis Div.)	207	64	1,007,836	15 747	43 73	43.70	26.33	.....	4.61	5.03	0 59	.....	6.84	17.07	1.90	3 50
" " " (Cincinnati Div.)	130	28	428,465	15,302	39.6	....	27 17	.....	2.55	5.24	0.51	.....	6.89	15.19	1.88	3.50

* Five empty cars rated as three loaded ones.
‡ Switching and work train engines allowed 60 miles per day.
¶ Switching engines allowed 6 miles per hour.
† Two empty cars rated as one loaded one.
‖ Three empty c rs rated as two loaded ones.

On the whole 738 miles the work done was as follows:

	1874–75.	1873–74.	Inc. or Dec.	P. c.
Freight train miles	1,036,163	1,251,861	Dec.. 215,698	17.23
Tons freight moved	1,212,160	1,348,214	Dec.. 136,054	10.09
Tons freight moved 1 mile	136,122,236	146,033,812	Dec.. 9,911,576	6.79
Average tons per train-mile	131.37	116.65	Inc.. 14.72	12.62
Revenue from freight	$2,615,935 92	$3,140,632 87	Dec..$524,696 95	16.71
Receipt per ton-mile	1.92 cents.	2.15 cents.	Dec.. 0.23 cent.	10.70
Expense per ton-mile	1.23 "	1.47 "	Dec.. 0.24 "	14.45
P'fit per ton-mile	0.69 "	0.68 "	Inc.. 0.01 "	1.47
Net freight earnings	$946,089 00	$1,028,110 30	Dec.. $82,021 30	7.97
Proportion of freig't exp'nses to earnings	63.83 per ct.	67.26 per ct.	Dec.. 3.43 per ct.	5.10
Passenger-train miles	1,031,245	988,816	Inc.. 42,429	4.29
Passengers carried 1 mile	36,493,299	37,414,225	Dec.. 920,926	2.46
Av'ge passengers per train-mile	35.4	37.8	Dec.. 2.4	6.35
Revenue from passengers	$1,564,379 25	$1,627,198 74	Dec.. $62,819 49	3.86
Receipt per passenger-mile	3.67 cents.	3.77 cents.	Dec.. 0.10 cent.	2.65
Expense per passenger-mile	2.50 "	2.98 "	Dec.. 0.48 "	16.14
Profit per passenger-mile	1.17 "	0.79 "	Inc.. 0.38 "	48.10
Net passenger earnings	$441,671 60	$303,405 67	Inc..$138,265 93	45.57
Proport'n of passeng'r exp'ns to earnings	71.77 per ct.	81.35 per ct.	Dec..9.58 per ct.	11.78

Unless there is a still further decrease in the cost of material and labor it is thought that there can be little or no further reduction in the cost of working the road. Much saving has resulted from the increase in the average freight-train load. During the past three years 40 new mogul engines have been put on the road, and their use, with close attention to the full loading of cars and the securing of full loads for each train, have produced the saving.

The earnings of the 738 miles worked were as follows:

	1874–75.	1873–74.	Inc. or Dec.	P. c.
Passengers	$1,337,838 80	$1,409,646 94	Dec.. $71,808 14	5.1
Express	122,385 27	133,439 92	Dec.. 11,054 65	8.3
Mail	104,155 18	92,223 63	Inc.. 11,931 55	12.9
Train privileges	5,129 12	5,157 89	Dec.. 28 77	0.6
Rent of pass. cars	21,339 56	21,013 98	Inc.. 325 58	1.6
Freight	2,615,935 92	3,172,550 45	Dec.. 556,614 53	19.5
Rent of freight cars	44,646 60	44,578 05	Inc.. 68 55	0.1
Detention, storage, etc.	616 24	1,395 33	Dec.. 779 09	57.7
Rent of engines	40,529 05	41,402 45	Dec.. 873 40	2.1
Rents	16,376 95	28,011 38	Dec.. 11,634 43	41.6
Total earni'gs	$4,308,952 69	$4,949,420 02	Dec.. $640,467 33	12.9
Working exp's	2,792,554 57	3,479,617 62	Dec.. 687,063 05	19.7
Net earnings.	$1,516,398 12	$1,469,802 40	Inc.. $46,595 72	3.2
Gross earn. per mile	$5,839	$6,707	Dec.. $868	12.9
Net earn. per mile	2,054	1,992	Inc.. 62	3.2
Per cent. of exp.	64.8	70.3	Dec.. 5.5	7.8

In addition to the general depression of business, the local traffic fell off largely, owing to short tobacco, cotton, grain and hog crops. The business between competitive points decreased much less than that from local sources. The decrease in local freight was 29 per cent.; through freight on the Nashville Line showed an increase of about 1⅛ per cent., while that on the Memphis Line decreased 11¾ per cent. The traffic of the Memphis Line has been seriously affected by the extension of the St. Louis & Iron Mountain road through Arkansas, and also to some extent by the completion of the Mississippi Central to Cairo.

Since the payment of dividends was suspended valuable extensions and connections have been made, the road put in excellent order, large additions made to the equipment, and everything placed in readiness for a large business—much larger indeed, than the road has had to do the last two years. The resumption of dividends depends altogether upon the revival of business.

The net earnings of the Nashville & Decatur road were $206,215.07, the rental paid, $229,714.16, leaving a deficit of $23,499.09. The amount expended in improvements was $27,132.91, which, added to improvements made in former years, makes $249,653.51. These expenditures are to be repaid at the end of the lease.

The operations of the South & North Alabama road, 183 miles, were as follows:

	1874–75.	1873–74.	Inc. or Dec.	P.c.
Gross earnings	$554,921 11	$561,275 43	Dec.. $6,354 32	1.1
Expenses	389,186 39	465,695 49	Dec.. 76,509 10	16.4
Net earnings	$165,734 72	$95,579 94	Inc..$70,154 78	73.4
Gross earn. per mile	$3,032	$3,067	Dec.. $35	1.1
Net earn. per mile	906	522	Inc.. 384	73.4
Per cent. of expenses.	70.1	83.0	Dec. 12.9	15.5

The interest paid upon the bonded debt was $453,618.13, and advances made on construction and old accounts were $90,709.98, making total advances during the year, $378,593.39. The number of tons carried one mile was 21,525,829, against 20,447,730 the previous year, an increase of 5.3 per cent. The coal and iron interests along the line are being slowly but surely developed, and the traffic shows a steady and encouraging growth.

The South & North Alabama Railroad Company has transferred to the Louisville & Nashville Railroad Company its land grant, and the value of the same has been credited to that company. It has also transferred its claim for the "three-per-cent. fund" and bonus due the road from the State of Alabama; these latter assets, however, are not immediately available.

The profit and loss account for the year was as follows:

Balance from previous year		$2,481,032 94
Sundry credits		773 50
Gross earnings		3,694,444 66
" " Nashville & Decatur		594,657 65
Total		$6,770,908 75
Working expenses, Louisville & Nashville	$2,392,507 71	
Interest account, " " ..	1,148,836 25	
Discount on bonds	136,954 40	
Working expenses, Nashville & Decatur	388,442 58	
Interest and dividends " " ...	229,714 16	
Sundry charges	28,214 22	
		4,324,669 32
Balance to current year		$2,446,239 43

The President's report closes by expressing the obligations of the company to Mr. Albert Fink for his long and valuable services, and the regret of the officers and directors of the road at parting with him.